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THE
PHYTOLOGIST:
A
POPULAR
BOTANICAL MISCELLANY.

CONDUCTED BY
GEORGE LUXFORD, A.L.S., F.B.S.E.

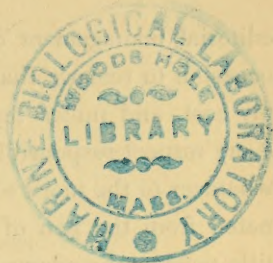
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"The slightest piece of information which may tend to the advancement of the science [of Botany], we should thankfully receive. However trifling in itself, yet combined with other facts it may become important. Whatever relates to the determination of species, even in the lowest and seemingly least important of Nature's works, ought never to be neglected. He who determines with certainty a single species of moss, adds so far to the general stock of human knowledge." — SIR J. E. SMITH.

PREFACE.



THE PHYTOLOGIST owes its existence to the desire of recording and preserving FACTS, OBSERVATIONS and OPINIONS relating to Botany in general, but more especially to British Botany. Prior to its commencement *these* had no appropriate receptacle. There was no periodical to which they would be acceptable. For works of a general character, they were esteemed too dull : for those of high scientific pretensions they were supposed too trifling. By field-botanists alone were they considered worth preserving : to such the utility, the value of an unpretending monthly journal was most manifest ; and these field-botanists — these observers — these labourers in the delightful fields of botanical enquiry, have freely availed themselves of its pages : they have done all that was anticipated, and 'The Phytologist' has become the medium of their communications with each other and with the botanical public.

It has been a source of great pleasure to me to observe, from time to time, among such contributors, the honoured names of Forster, Woods, Borrer, Wilson, Boott, Taylor, Greville and Ralfs, — names familiar as household words to the ear of every botanist, — names that constantly occur in works treating of British plants. Neither must I omit to enumerate others, perhaps of a younger school, but already honorably known ; — as Mr. Spruce, the talented muscologist, Mr. Babington, Mr. Leighton, Dr. Balfour, Mr. Watson, Mr. Irvine, and Mr. Luxford, — all highly esteemed for their labours in the cause of British Botany, have lent their aid to 'The Phytologist.' To the last-named gentleman I am indebted, not only for those papers which bear his name, but also for numerous anonymous articles, and the

editorial management of the entire volume. And here I will take occasion to remark, that although 'The Phytologist' is published at my cost, and under my immediate control; and although I am in every respect responsible for anonymous articles; yet I have no claim whatever to the merit of such articles, since they have generally emanated from the pen of Mr. Luxford, whose name now stands in the title-page as the avowed editor.

It only remains for me to offer my best thanks to every subscriber and contributor, to all who promoted the welfare of my undertaking; but more especially to Mr. Luxford for his editorial labours, and to Mr. Dennes, Secretary to the Botanical Society of London, for the unremitting kindness and regularity with which he has furnished such able Reports of its proceedings.

EDWARD NEWMAN.

9, Devonshire St., Bishopsgate,
November 20, 1844.

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THE PHYTOLOGIST.

No. I.

JUNE, MDCCCXLI.

PRICE 6D.

ART. I. — *A History of the British Lycopodia, and allied Genera.*
By EDWARD NEWMAN.



COMMON CLUB-MOSS.

LYCOPODIUM CLAVATUM of Authors.

LOCALITIES.

England	} Universally distributed, on elevated moors and heaths.
Wales	
Scotland	
Ireland	

THE Common Club-moss, Wolf's-claw, or Stag's-horn is the only species of *Lycopodium* that can be spoken of as abundant in Britain. It occurs on most of our moors and heaths, especially when rather more elevated than the surrounding country; for instance, in the vicinity of London it is found on Hampstead Heath, High Beech, the Addington Hills, &c. It is abundant on nearly all the mountains of the north of England, Wales and Scotland, and is found occasionally, but less frequently, in similar situations in Ireland.

This club-moss is a handsome and interesting plant. I have heard of a lady who had a ball-dress ornamented with its graceful festoons; and Linneus relates that in Lapland he saw the boys with their heads decorated with chaplets or wreaths formed of it, the double spikes projecting on all sides, a sight which reminded him of the fauns and satyrs:* and Tragus says that the girls in Germany make it into chaplets and belts.†

Old Gerarde has some remarks on the subject which are so pleasant, that I think my readers will not object to my quoting them at length. "There is another kinde of mosse which I have not elsewhere found than upon Hampstead Heath, neere unto a little cottage, growing close upon the ground amongst bushes and brakes, which I have shewed unto divers surgeons of London that have walked thither with mee for their further knowledge in simples, who have gathered this kinde of mosse, whereof some have made them hatbands, girdles, and also bands to tye such things as they have before gathered, for the which purpose it most fitly served; some pieces whereof are six or eight foot long, consisting as it were of many hairy leaves set upon a tough string, very close couched and compact together, from which is also sent forth certain other branches like the first: in sundry places there be sent down fine little strings, which serve instead of roots, wherewith it is fastened to the upper part of the earth, and taketh hold likewise upon such things as grow next unto it. There spring also from the branches bare and naked stalkes, on which grow certaine eares as it were like the catkins or blowings of the hasell-tree, in

* Vidi aliquando, grato spectaculo, pueros Lapponum ex hoc musco sarta conficisse capitique suo eadem imposuisse, horrentibus undiquè spicis distichis, hirsutie Faunis et Satyris similes.—'Flora Lapponica,' p. 339.

† Virgines et sarta et cingula ex hoc musco conficiunt.—'De Stirp. Nom.' 554.

shape like a little club or the reed mace, saving that it is much lesser, and of a yellowish white colour, very wel resembling the claw of a wolfe, whereof it tooke his name, which knobby catkins are altogether barren, and bring forth neither seed nor floure." *

It seems rather unaccountable that neither Gerarde, nor his able editor, Johnson, to whom, by the way, the great herbalist is indebted for the better half of his fame, should have so entirely overlooked the minute but multitudinous seeds, which have attracted the attention of so many other botanists. Olearius appears to have been the first to mention these seeds, and a curious purpose to which they have been applied. This author devotes the 24th chapter of the 4th book of his Itinerary to the fire-works of Ardebil, a town in Persia; and he believes them produced by the seeds of this Lycopodium. He observes, "We saw at a distance some flames rise suddenly in the air, and as suddenly disappear, and we supposed them to be produced by the Russian *Plaun*, which is much used for this purpose. The *plaun*, to explain more fully, is nothing more than a yellow dust which is beaten out of the *Muscus terrestris*. The moss is called in herbals *beerlap*† or *Devil's-claw*, and grows commonly in fir and birch woods, and also on waste lands; I have frequently met with it in the Russian and Livonian woods. It throws out twin cones, which, when ripe in August, are collected in large quantities and dried in furnaces; the powder is then beaten out and sold by the pound. I bought several ox-bladders full, and brought them home with me. Its other uses are in green wounds, recent bruises, and for chafed children, inasmuch as it is of a drying and healing nature, and it is moreover used by the Russians in the Chaldaic fire above spoken of. The powder is placed in a tin cases, of elongate conical form, about half an ell in length, or sometimes shorter; this is taken in the hand, and a burning light or torch is placed at the aperture, the case is then waved about in the air, so that the *plaun* flows through the aperture, and then ignites, producing a bright flame: when the motion is rapidly repeated, so that one flame follows another, it produces a very extraordinary effect. Fine fun may be made in company, if a tobacco-pipe be secretly filled with this *plaun*, and held at the light and blown into; a strong flame, suddenly and unexpectedly to those sitting around, proceeds from it, and that it may produce a great noise, they mix it with powdered birch-leaves. The *plaun*-powder has the property of igniting only when it is dusted through a flame in the air, and not otherwise, even if a torch

* Ger. Em. 1562.

† Tragus figures the plant under this name.

or light be placed in it, or it be cast on live coals. In case the plaun is not to be obtained, finely powdered sweet-scented gum or rosin will answer the purpose, and this, besides the amusement, produces a pleasant smell. The plaun has no particular smell and produces no smoke.”* Subsequent writers appear to have curtailed and garbled these interesting remarks, rather than verified them by their own observations.

In some of the chemists’ shops of this country the seed of *Lycopodium* is kept as an article of sale; and Mr. Luxford, who has tried the experiment, bears ample testimony to its inflammable property. The demand for this article, as may be supposed, is extremely limited, yet a friend has informed me that he is acquainted with a chemist who has received an order for several pounds weight of it; the purpose for which this large quantity was required is unknown. Sir J. E. Smith says that the seeds are still sold in the shops in Germany for the purpose of producing artificial lightning on the stage:† this use must however be very limited, on account of the difficulty of procuring the seed in any quantity; and moreover, as mentioned above by *Olearius*, pulverised rosin is found to be a cheap and efficient substitute. I have lately been informed that these seeds, spread upon a plate of metal, have been employed in *Chladni’s* lectures to illustrate the vibration produced by sound.

The medical properties of the common club-moss have been greatly extolled by our earliest writers. *Tragus* gives a flaming account of its virtues, the chief of which seem to be the removal of calculus by comminution, and the cure of gout;‡ *Matthiolus*,§ *Camerarius*,|| *Lobel*,¶ *Tabernæmontanus*,** *Ray*,†† and *Dillenius*,‡‡ appear to have taken these virtues for granted, as they have copied them without hesitation. *Ray* indeed adds several others, and asserts that a decoction of its leaves was used in Poland as a cure for a disease called *Plica*, whence, he observes, the plant has been named *Plicarius*;§§ and *John Bauhin*, in addition to many other valuable properties, states

* *Olearius*, ‘*Itin. Muscovit. Persic.*’ lib. iv. cap. 24.

† *Eng. Fl.* iv. 331.

‡ *Vino decoctus ac potus calculos comminuit*; * * *nonnulli etiam aquam ex eo distillant, ad eadem affectionem. Muscus contusus aut in vino decoctus dolorem et inflammationem sedandi vim obtinet, ideoque podagræ calidæ impositus prodest. Tragus, 555.*

§ *Matthiolus*, *Valgr.* i. 57.

|| *Camerarius*, *Epitome*, 32.

¶ *Lobelius*, 645.

** *Tabernæmontanus*, 1201. †† *Ray*, *Hist.* 120. ‡‡ *Dillenius*, *Hist. Musc.* 441.

§§ *Apud Ruthenos et Lithuanos ad Plicam morbum gentibus illis endemium adhibitur, unde Plicarium et Cingularium eum nominant. Syn. 107.*

that loose teeth may be fixed by washing the mouth with a decoction of the seed in red wine.* I am, however, inclined to think that its use in either of these capacities must have been much less extensive than its historians imagined; indeed, from certain references, it seems not improbable that many of its supposed virtues owe their origin to a passage in Dioscorides, on a plant which he calls *Muscus marinus*, and which, beyond all doubt, is one of the Algæ. Mr. Ward informs me that whatever may have been its pristine fame, it holds no place in the modern Pharmacopœia. Tragus observes that the Germans call the plant Weingrein, from its power of restoring injured wine.† The same observation is repeated by his successors.

Lightfoot, in his 'Flora Scotica,' says that the Swedes make mats of the club-moss to rub their feet on; if this be true, it is remarkable that the fact should have escaped the notice of such observant men as Linnæus and Wahlenberg; neither of whom makes the slightest allusion to the subject. Is it possible that Lightfoot has made free with the remark in Wahlenberg's 'Flora Suecica,' that the Swedes call the plant *Mattegräs*, ‡ a most appropriate name, being simply equivalent to matted grass, and not at all implying its employment in the manufacture of mats?

The older botanists have generally called this species *Muscus terrestris*, or *Muscus clavatus*: Cordus terms it *Chamæpeuce*, or dwarf fir: and all writers since the establishment of the Linnæan binominal nomenclature, have agreed in naming it *Lycopodium clavatum*. It is figured by Tragus, Lobel, Tabernæmontanus, Cordus, Gerarde, John Bauhin, Plukenet, Matthioli, Camerarius, Dillenius, &c., but with the exception of the figure by Dillenius,|| none of them give a very accurate idea of the plant; of later representations, that in the 'Flora Danica'¶ is perhaps the best, but even this does not approach in accuracy or freedom of drawing the admirable figure by Dillenius.

The roots of this species are very tough, wiry, and pale in colour; they are generally nearly straight and simple for an inch or more, then suddenly divided and tortuous; they are usually placed singly and at rather long distances from each other, and do not penetrate deeply into the earth, but yet fix the creeping stem most firmly, and prevent any

* In eodem [rubro] vino coctus, si eo abluatur os, tremulos dentes confirmat. Hist. iii. 759.

† *Muscus terrestris* vino pendulo impositus, intra paucos dies illud restituit. * * Hinc quidem apud Germanos muscum terrestrem Weingrein nominant. Tragus, 555.

‡ Suecis *Mattegräs*. Wahlenberg, 'Flora Suecica,' 684.

|| 'Historia Muscorum,' tab. lviii. fig. 1.

¶ Tab. 126.

injurious action from the wind. It has been supposed that on lofty mountains this plant, forming as it does a compact matted turf, whence the Swedish name, serves to bind the surface of the soil more closely together, and thus secure it from the continued crumbling away to which, in exposed situations, it is constantly liable, from the effects of wind and rain.

The stem is procumbent and repeatedly branched, the branches being at first slightly elevated, but soon becoming completely prostrate. It extends to a great length; I have frequently found plants on Crooksbury Hill, near Farnham, in Surrey, spreading to a circumference of ten or twelve yards. The whole plant has a rigid, harsh, and wiry feel when handled, even in a living state, and more especially when dried. When the plant is about to produce seed, there are thrown out from various parts of its branches, spikes of about an inch in length, of a pale sulphur colour, and in shape somewhat resembling catkins; these are usually double, but some few are single, and a still smaller number treble; they are erect and straight until the seed has been shed, when they become curved; they are situated on a stalk about twice their own length, and nearly naked, a character which is sufficient to distinguish this from any other of our indigenous species, and which gives to the plant, when growing luxuriantly, as I have seen it at Cwm Idwal and other parts of Caernarvonshire, a most striking and beautiful appearance.

The whole of the branches are densely covered with narrow, flat, ribless, smooth leaves, the edges of which are slightly toothed, and the tips terminate in a filamentous point: the leaves as well as the stems are persistent; I have observed them in March and April perfectly uninjured by our severest winters. On the stalks supporting the spikes the leaves are longer, narrow, and of a pale yellowish green colour; they are closely pressed against the stalk, and disposed somewhat in whorls, thus giving to the stalk the appearance of the stem of an *Equisetum*; they also in a great degree want the long filamentous points which are invariably present on the leaves of the prostrate branches, to the extremities of which they often give a hoary appearance. In the spike itself the leaves are very much broader at the base, being altogether of a more triangular figure, and assuming the appearance and office of bracts; their colour is a pale yellow, and their margins are membranaceous and serrated. After the seed has escaped, these leaves or bracts become reflexed, giving to the spike a very altered character and appearance.

The thecae are somewhat reniform, perfectly sessile, and of a pale

yellow colour: they are situated at the base of the bracts; each is two-valved, and filled with numerous minute and almost impalpable seeds, from which in cultivation young plants may be raised with little difficulty.

EDWARD NEWMAN.

(To be continued).

ART. II. — *Descriptions of two new species of Maxillaria, from the Organ Mountains, Brazil.* By FREDERICK WESTCOTT, Esq., A.L.S., &c.

Birmingham, March 26th, 1841.

Sir,

The two new *Maxillarias* described below, are natives of the Organ Mountains; and, with many other apparently new species, were sent over from Brazil to the Birmingham Horticultural Society, in the spring of 1840, by E. W. Fry, Esq.

Yours &c.

FRED. WESTCOTT.

To the Editor of 'The Phytologist.'

Natural Order.—ORCHIDACEÆ, *Lindl.* Tribe.—VANDEÆ, *Lindl.*

Genus.—MAXILLARIA, *Ruiz et Pavon.*

Max. barbata. Pseudo-bulbis inæqualitèr quadrangularibus, corrugatis, vaginatis: foliis ovatis, costatis, acutis: floribus racemosis; sepalis inæqualibus, petalis majoribus, lateralibus explanatis, apice subinvolutis; labello cucullato, trilobato, barbato, margine crispo, apice gibboso, disco carnosio.

Pseudo-bulbs quadrangular, wrinkled; at the apex of each is a cup-like cavity, which surrounds the base of the leaves when present; sheaths twice as long as the pseudo-bulb. Leaves solitary, ovate, ribbed, acute. Scape arising from the base of the pseudo-bulb, slender, smooth, and about six inches high. Flowers about eight, yellow, disposed in a raceme. Bracts about two lines long, brown and scarious at the edges, and closely embracing the peduncle. Peduncle about one inch long. Sepals unequal, yellow, involute at the apex, the lateral ones spread out, the upper one more or less connivent. Petals obtuse, of the same colour as the sepals, but much smaller. Labellum

bearded, cucullate, three-lobed, and having a fleshy excrescence on the disk; darker in colour than the sepals and petals, and marked in the centre and on the lateral lobes with a dark purple spot. Column short and minutely pubescent on the back, in the upper part. Stigmatic cavity angular, membranous and three-lobed, the central lobe subulate. Clinandrium entire. Caudiculæ two, distinct. Gland transverse. Pollen-masses compressed, sulcate. Anther-case one-celled, and minutely pubescent like the column.

This species in habit, in the form of the pseudo-bulbs, and in the foliage, is very similar to *Max. tetragona*, but the flowers are altogether different, and bear a resemblance to those of *Max. aureo-fulva*, Hook., figured in the 'Floral Cabinet,' ii. plate 83.

Max. purpurascens. Pseudo-bulbis ovatis vel conicis, sulcatis: foliis duobus, lineari-lanceolatis, apiculatis: floribus solitariis, glabris; sepalis æqualibus, lanceolatis, apiculatis, supremo connivente, lateralibus labello parallelis; petalis conniventibus, linearibus, sepalis brevioribus; labello trilobato, margine purpureo maculato, glabro, disco carnoso; antherâ subpubescente.

Rhizoma growing along the top of the pot and sending off pseudo-bulbs, which are ovate or conical and furrowed. Leaves two, about four inches long, linear-lanceolate, and pointed at the apex. Scape about six inches high, smooth, tinged with purple and bearing a solitary flower at the apex. Flower smooth, internally yellow, externally purple. Bracts about half an inch long. Sepals about an inch long, apiculate at the apex; the lateral ones arranged parallel with the labellum, the upper one connivent over the petals and column. Petals much smaller and shorter than the sepals, and as long again as the column. Labellum smooth, three-lobed, the middle lobe recurved at the margin, the apex of the lateral lobes beautifully spotted with purple. Column smooth. Clinandrium smooth or slightly pubescent. Stigmatic cavity round. Caudiculæ two. Gland transverse, crescent-shaped. Pollen-masses two, each of which is divided into two distinct parts. Anther one-celled, somewhat compressed and slightly pubescent.

This species is very different in habit from the preceding. It possesses a creeping rhizoma, which throws out ovate or subconical pseudo-bulbs from its upper surface; the leaves are also much narrower, and the scape is of a pleasing purple colour. In size and form the flowers nearly resemble those of *barbata*, but are solitary and of a different colour. *Maxillaria aureo-fulva*, *barbata* and *purpurascens* possess double caudiculæ (as is the case also in the genus *Bifrenaria*),

and their inflorescence in other respects differs so much from that of any other species of *Maxillaria* with which I am acquainted, that they may be considered as forming a very distinct group of the genus.

FRED. WESTCOTT.

ART. III. — *Description of a Primula, found at Thames Ditton, Surrey, exhibiting characters both of the Primrose and the Cowslip.* By HEWETT COTTRELL WATSON, Esq., F.L.S. &c.

THE circumstances under which this oxlip was found, rather than any peculiar character in the plant itself, induced me to exhibit it at the meeting of the London Botanical Society on Friday last.

For several years past I have been in the custom of traversing the fields and coppices of Thames Ditton and the adjoining parishes, and have particularly looked out for oxlips, but until the present spring not a single plant of the kind has been observed, while cowslips and primroses are abundant in many places. The oxlip in question was found in an old orchard, where the ground is very damp, and in summer much shaded by trees. Numerous plants with the true cowslip and primrose characters were growing about this solitary oxlip; and I could not see another specimen on again visiting the spot a week later, when more of the cowslips had come into flower. It should be remarked, however, that as I had never before been within the orchard, I cannot say that oxlips had not grown there in preceding years. I had frequently walked down a lane which runs alongside the orchard, and observed that it contained both cowslips and primroses; and was again doing so, when the showy flowers of the oxlip attracted my attention, and induced me to cross the hedge for it. The mention of an orchard might lead to a supposition that the plant had been introduced; but this appears to me improbable, since the fruit-trees grow in grass only, there being neither dug ground, nor any garden plants except the fruit-trees, which are chiefly apples. All the circumstances lead to a reasonable presumption, that this solitary oxlip had originated from a seed either of the cowslip or primrose; yet its characters are so completely intermediate between the two, that I can give only the slightest preponderance in favour of the cowslip.

The plant I imagine to have been of three years' growth, and that this is the second year of its flowering. It had four umbels, only on eof them having the flowers expanded when the plant was taken up. Besides these umbels there were half-a-dozen solitary flowers and buds

on as many separate scapes ; all these single-flowered scapes springing from the same point amongst the leaves clustered on the head of the root, or rather, subterranean stem. The calyx is intermediate between those of the cowslip and primrose. The corolla has the deep colour of the cowslip, but in size, and in the flatness of the limb, approaches much nearer to that of the primrose. The leaves of the present year have the colour and nearly the form of those of the cowslip, but two or three large half-withered leaves, of last year as far as can be now ascertained, resembled more decidedly those of the primrose. If these old leaves had not been seen, I should have pronounced the plant a cowslip, notwithstanding the size and flatness of the corolla, and the few single-flowered scapes.

The specimen exhibited at the meeting was only half the plant; the other part is planted in my garden, where I hope to watch its flowers next spring.

After finding this one specimen, I examined the cowslip and primrose localities all around with renewed diligence, and found a second oxlip a mile or two from the first, and in a situation very different, except in being damp. It was growing amongst many cowslips in a pasture field, with primroses not many yards distant, and in every respect resembled the other cowslips, except that the corolla had the pale tint and almost the shape of the primrose ; being considerably larger than the cowslip, but smaller than the primrose. This plant had been crushed under the foot of a cow ; and its leaves were small and the scapes short, and bearing few flowers : it was obviously injured and unhealthy.

Primroses, self-sown, spring up freely in my garden, and the seedlings occasionally produce umbelliferous scapes ; but in other respects they have hitherto retained all the characters of the wild primrose, except varying in colour from pale yellow to different shades of red, and occasionally exhibiting monstrosities in the calyx.

I may remark that young botanists sometimes mistake a late state of the common cowslip for the oxlip. After the germen is fertilized, the flowers of the former become erect ; the limb of the corolla loses its concave form, and when large and vigorous it bears at this stage some resemblance to a small primrose flower.

Thames Ditton,
April 19, 1841.

HEWETT C. WATSON.

ART. IV. — *Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON, B.A., F.B.S.E. London: Van Voorst. 1841. *With additional Notes on many of the Plants described in the Work.*

PREVIOUSLY to the appearance of this excellent work, there was no regular Flora of Shropshire in existence; the only illustrations of the Botany of that county being contained "in the county lists of plants in 'Camden's Britannia,' the 'Botanists' Guide' [by Turner and Dillwyn], and the 'Agricultural Survey,' and the few notices scattered throughout the works of How, Ray, Purton, Withering and Smith:" and the only record left by any botanist of the result of his investigations in this district, is a MS. catalogue of the plants of Shropshire, with their localities, compiled by the Rev. E. Williams, which still remains unpublished in the hands of the Right Hon. Lord Berwick, who liberally allowed Mr. Leighton to make unreserved use of its contents. In this catalogue are enumerated 715 species of flowering plants and 300 species of Cryptogamia.

The present volume of the 'Flora of Shropshire' is complete in itself, and is restricted to the Vasculares, of which it contains characters and full descriptions of 876 species, arranged according to the Linnæan system, with synonymes and references; and a copious list of localities is attached to the less common plants.

It was at first the intention of the author, that this work should "appear as a mere catalogue of plants, with localities and observations," but he was ultimately induced to present it in the more extended form of a descriptive Flora. To render it "more complete and comprehensive than could be effected by his single and unaided efforts, circulars, containing queries and heads of enquiry, were distributed, to which many friends of science resident within the district most cheerfully and liberally responded."

In the list of friends to whom the author returns thanks for assistance rendered in this and other ways, we notice the names of many of the first botanists of the day, including Professors Don, Graham, Lindley and Nees ab Esenbeck, Dr. Bromfield, Messrs. Babington, Borrer, Bowman, Dovaston (the friend and biographer of Bewick), Forster, and E. Lees.

"In the preparation of the work the invaluable Floras of Smith [2nd ed.] and Hooker [3rd ed.] were taken as text-books; and the Shropshire plants have been compared with their descriptions, and also, when requisite, with the works of Koch, Fries, Reichenbach, Bluff and Fingerhuth, and other continental botanists. The descrip-

tions have been, so far as practicable, invariably drawn up from careful examination of living or dried specimens, at the same time adopting such portions of the information conveyed by these authors, as a comparison with nature dictated, and rejecting it where apparently new and better characters displayed themselves."

Several valuable data towards the elucidation of the geographical distribution of the Shropshire plants, have been communicated by Dr. T. O. Ward, of Shrewsbury; and in a complete index of localities the geology of the county is exhibited from Murchison's 'Silurian Regions:' the geological relations of the plants being by this means clearly pointed out.

Many plants are recorded as occurring in Shropshire, which have been discovered and published as British since the appearance of Sir J. E. Smith's 'English Flora,' in 1828. The detection of these new forms, whether regarded as species or varieties, is the result of that spirit of enquiry and research which is now directing the labours of the most eminent of our British botanists, and which we believe to have sprung, in a great measure, from a desire to enable the progress of Botany in this country, to keep pace with its rapid advance on the continent. The following is a list of such of the species new to Britain as are described in the work before us; but the book itself must be consulted in order that an adequate idea of the mass of valuable information contained in it may be formed.

Veronica polita, *Fries.*

Buxbaumii, *Tenore.*

Valerianella carinata, *Lois.*

Potamogeton oblongus, *Viviani.*

Viola arvensis, *Murray.*

Cuscuta Epilinum, *Weihe et Nees.*

Rumex pratensis, *Mert. et Koch.*

Dianthus plumarius, *Linn.*

Spergula vulgaris, *Bonningh.*

Reseda alba, *Linn.*

Cerasus Avium, *Mænch.*

Rubus fissus, *Lindl.*

discolor, *Weihe et Nees.*

carpinifolius, *Weihe et Nees.*

vulgaris, *Weihe et Nees.*

villicaulis, *Weihe et Nees.*

Rubus Radula, *Weihe et Nees.*

Leightoni, *Lees, MS.*

Köhleri, *Weihe et Nees.*

echinatus, *Lindl.*

fusco-ater, *Weihe et Nees.*

pallidus, *Weihe et Nees.*

Schleicheri, *Weihe et Nees.*

dumetorum, *Weihe et Nees.*

Ballota ruderalis, *Fries.*

Cardamine sylvatica, *Link.*

Malva vulgaris, *Trag.*

Hypericum tetrapterum, *Fries.*

Senecio erraticus, *Bert.*

Habenaria chlorantha, *Bab.*

Callitriche platycarpa, *Kun.*

pedunculata, *DeCand.*

We have here a list of upwards of thirty new plants found in the county, thirteen of which belong to the genus *Rubus*. Whether many of the numerous reputed species of this genus will ultimately be allowed to retain that rank, is at present exceedingly doubtful. In

hardly any genus throughout the whole range of botanical science, does so much uncertainty prevail with regard to the limits of species, as in the genus *Rubus*: and it really must afford great comfort to botanical tyros, who have been puzzled by these most vexatious plants, to find that the great masters in Botany, — those who have paid particular attention to this difficult genus, are so completely at fault in their endeavours to determine the species, as the conflicting opinions appended to the descriptions of the forms arranged under the fruticose or bramble division of the genus, most evidently show them to be. Nor, after the perusal of these opinions, can we feel any surprise at finding the following remarks from the pen of Mr. Leighton himself, who is well known as an ardent botanist. “To the examination of the Shropshire brambles I devoted two successive summers, and collected specimens of every form which came under my notice, in which any conspicuous differences were observable. But, notwithstanding some care and attention, the strange and inconstant manner in which similar forms, and even what were apparently distinct ones, in innumerable instances varied or ran into each other, precluded me from arriving at any definite conclusions as to the limits and true characters of the estimated species, and in fact left me in a complete maze of doubt and ignorance whether they should not all be considered as modifications endlessly varied of one and the same species.” Mr. Leighton then distributed his specimens to Nees von Esenbeck, Professor Lindley and Mr. Borrer, and solicited their opinions. “In consequence, however, of their severally referring the same forms, in many instances, to different and opposite species, I found that no other alternative was left to me than to describe from the specimens submitted to them the various forms of the genus, and append to each description their opinions and remarks.”

We are very glad that Mr. Leighton has prefaced these descriptions with the well-known and often-quoted observations on the genus by Mr. Borrer* and Professor Lindley,† because we believe that the fact of the uncertainty respecting species which prevails in many British genera, though perhaps in none to so great a degree as in *Rubus*, cannot be too frequently or too prominently brought forward. For as in politics “agitation” is the watch-word when a party would attain an object on which they have set their affections, even so must the same means be resorted to whenever the energies of the cultivators of science are to be awakened, and their exertions directed to any desired

* Hook. Br. Fl. i. 245.

† Synopsis, 2nd. ed. 91.

end. The paramount importance of attention to "the limits within which a species may vary," has been most ably argued by the Rev. Professor Henslow in 'The Magazine of Zoology and Botany' for August, 1836, and 'The Magazine of Natural History,' iii. 406; and unless, as recommended in those valuable communications, a series of experiments and observations be instituted and carefully conducted, having for their express object the elucidation of this interesting, but at present most unsettled question; and unless, in addition to direct experiment, all the observed variations from what are considered the normal forms of plants, with the circumstances accompanying such variations, be carefully and precisely recorded;—we fear it will be long ere an approximation to the truth will have been attained. Our pages will ever be open to the reception of the results of such investigations; and it will give us great pleasure if by our means one single fact should be added to the existing stores of botanical knowledge, which may tend, however remotely, to the attainment of that important desideratum—the more exact determination of species.

It is not so easy to make suitable quotations from the pages of a Flora as from those of a connected narrative, whether in poetry or prose, and the illustrative observations contained in the work before us are all so valuable, that we find some difficulty in determining which to select: we must, however, lay before our readers some few specimens of the highly interesting contents of the book, at the same time taking the liberty to introduce occasional remarks on such of the plants of Shropshire as have fallen under our own observation in other parts of the country.

Veronica scutellata, Linn. "A variety with the whole herbage hairy occurs on some boggy ground north of Bomere Pool, and at the east end of Blackmere." As Mr. Leighton does not mention the colour of the flowers of this variety, we suppose it to be the same as that of the plant in its usual state. Several years ago we found, in some boggy ground near Bloxwich, in Staffordshire, two specimens of what appears to be a weak, prostrate variety of this species, with the leaves short, ovate-lanceolate and rather hairy, and the flowers *blue*: the plants, except in the colour of their flowers, closely resembling the *Ver. parmularia*, of Poit. et Turp. 'Fl. Paris.' tab. 14, which is *Ver. scutellata* β of 'Eng. Fl.' i. 21.

Veronica polita, Fries, the *Ver. agrestis* of 'Eng. Bot.' 783, may readily be distinguished from that species by the bluish green hue and less succulent appearance of the whole plant, in which we have never

observed any disposition to assume a red or purple colour, as in certain situations *agrestis* may frequently be seen to do; the peduncles in *agrestis* are shorter than the leaves, and the cells of the capsule contain few seeds, whereas in *polita* the leaves are shorter than the peduncles and sharply serrated, and the cells of the capsules are many-seeded. These two species are admirably figured in 'English Botany,' *polita* in tab. 783, and *agrestis* in tab. 2603 (Suppl.) In the Shropshire Flora the latter species is said to be "common," while the former is described as being "rare;" we have observed these conditions to be reversed in many parts of Surrey.

Veronica Buxbaumii, Tenore, 'Fl. Neap.' i. 7; 'Eng. Bot. Suppl.' 2769; the *Ver. filiformis* of Johnston, 'Fl. Berw.' i. 225, and Hook. 'Br. Fl.' ed. 1, p. 6; distinguished from *Ver. polita* and *agrestis*, to both which it is allied, by the form of the capsule, which is compressed, obcordate, and in breadth nearly double its length, with its lobes divaricated, sharply keeled, smooth and veiny. We possess specimens raised from seeds which had been sent from Sussex by Mr. Borrer, the original discoverer, to one of our friends, (now deceased); these seedlings exhibit all the characters of their parents. Some botanists look upon this as a doubtfully-indigenous species, believing it to have been either introduced with crops, or to have escaped from cultivation; in a paper read before the Botanical Society, Nov. 10, 1836, after giving two new Scottish localities for this species, Professor Graham remarks that he "had not seen either station, but was inclined to believe with Dr. Dewar [the authority for these localities], that the plant had not been introduced, because it had only lately been cultivated, and probably has not been so yet near either of these stations."—First Report, p. 34.

Pinguicula vulgaris, Linn. Mr. Leighton observes,—"On the gradual decay of the leaves in autumn, small, round, leafy buds or hibernacula are formed, which survive the winter, and are capable of developing new plants in the spring." Our excellent friend Mr. Cameron, of the Birmingham Botanic Garden, first pointed out to us these hibernacula on Sutton Common in Warwickshire, April 17th, 1835; when we also had the gratification of finding in flower, for the first time, the local *Eriophorum vaginatum*, the silvery grey glumes of its spikes being nearly hidden by the prominent yellow anthers. On the 23rd of May in the same year we paid a second visit to the Common, and found the *Eriophorum* in seed, with its beautiful silky heads waving in the breeze; the *Pinguicula* was then in full flower, as were also *Eleocharis cæspitosa*, *Vaccinium Vitis-idæa*, *Empetrum nigrum*,

and several other plants which rewarded our researches the same day. One specimen of *Pinguicula vulgaris* which we then gathered, has the flower-stalk divided, at about half an inch from the base, into four branches, of different heights, each bearing a solitary flower at the summit.

Mr. Leighton does not mention the irritability exhibited by this species of *Pinguicula*, nor is it alluded to by either Smith or Hooker. When the plant is dug up the leaves bend backwards and downwards, so as completely to conceal the root; the flower-stalks also become curved. This action we have frequently observed in the *Pinguicula vulgaris*; but as we have never had an opportunity of collecting either of the other British species, we are not aware whether they also exhibit the same irritability; the leaves of our specimens of *Pin. alpina* are however deflexed quite as much as those of *vulgaris*, whence we infer that the two species are thus acted on in an equal degree; in our specimens of *Lusitanica* and *grandiflora* the leaves are not at all deflexed.

Rhynchospora alba, Vahl. Two varieties of this species are recorded as growing with its usual form, and in nearly equal abundance, at Bomere Pool and on Twyford Vownog, near Westfelton; one with the corymb as long as the outer bracteas, and the other having the spikelets in a somewhat oval head, shorter than the outer bracteas. For other particulars relating to this species and *Rhyn. fusca*, see 'Mag. Nat. Hist.', viii. 675.

Referring to *Festuca pratensis*, Huds. and *Fes. arundinacea*, Schreb. (*Fes. elatior*, Linn.; E. Fl. i. 148; E. Bot. 1593; Hook. Br. Fl. 50), at p. 51, Mr. Leighton remarks, "After a careful comparison of the two preceding very closely allied species, I have been unable to discover any satisfactory characteristic distinctions, and am induced to consider them only as modifications of the same plant. The chief differences assuredly consist in the larger size of *F. arundinacea*, the ovato-lanceolate not linear form of the spikelets, and the number of florets, yet all these may possibly depend on soil and situation producing a more vigorous growth and a suppression of development in the florets. No dependance can be placed on the awns of the corolla, since they are equally present or absent in both plants, nor on the roots, which are in both somewhat creeping and the fibres downy. In deference, however, to the authority of our British Floras, they are here retained as separate species."

(To be continued).

THE PHYTOLOGIST.

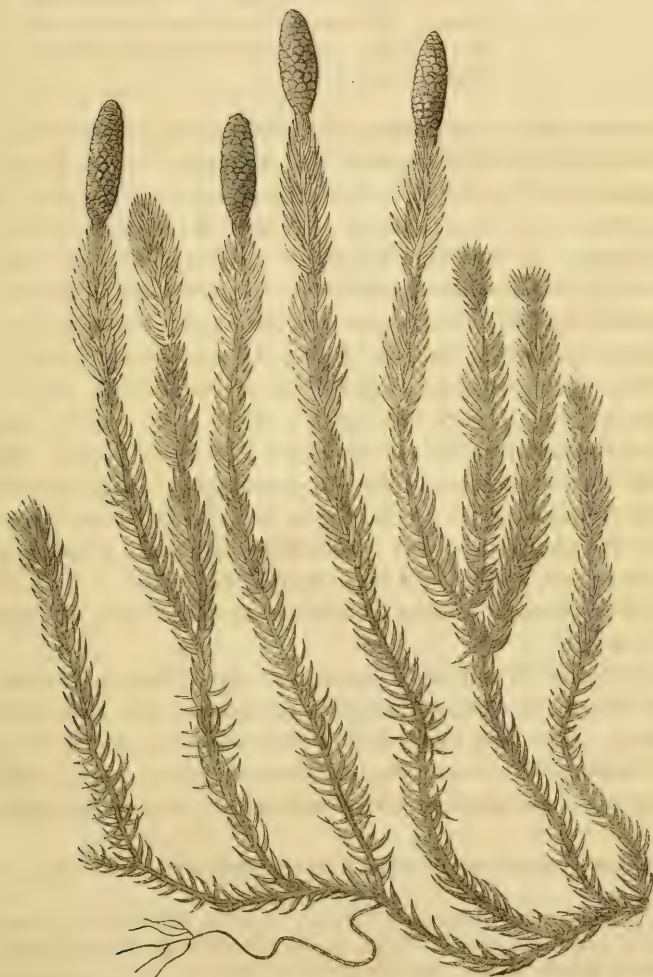
No. II.

JULY, MDCCCXLI.

PRICE 6D.

ART. V.—*A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN. (Continued from page 7).



INTERRUPTED CLUB-MOSS

LYCOPodium ANNOTINUM of Authors.

LOCALITIES.

England.	} Unknown.
Ireland.	
Wales.	Caernarvonshire, on the side of Glyder mountain facing Trevan, above Llyn-y-cwn. <i>Messrs. Janson, Woods, Borrer & Wilson.</i>
Scotland.	Ben na Mac Dhui, Ben na bourd, Loch na gar, Mountains in Braemar, Glen Dole, Clova Mountains; <i>Drs. Balfour and Greville and Mr. Campbell.</i> Cairngorum range, <i>Sir W. J. Hooker.</i> Invercauld Woods, Aberdeenshire, <i>Mr. W. Brand.</i> Sow of Athol, a mountain beyond Dalnacardock, Perthshire, <i>Prof. Graham.</i>

ALTHOUGH one of the commonest Norwegian and Swedish species, the Interrupted Club-Moss is of rare occurrence in the British Isles. In England and Ireland it is entirely unknown: in Wales it appears to be confined to a single locality, the side of Glyder mountain above Llyn-y-Cwn. It was first discovered in this locality by Llwyd and Ray; the former of whom speaks of its occurring abundantly.* Dillenius corroborates this statement,† and the habitat has been established by modern botanists: Messrs. Borrer, Janson, Woods and W. Wilson, have seen the plant growing in the same spot, but all these gentlemen found it very sparingly; and in 1839, when I diligently searched the mountain-side, I could not find a single plant: therefore, although the observation of Ray is most satisfactorily established, it is still doubtful whether the habitat is likely to be preserved, and even whether the plant is not now confined to Scotland, where it grows at great elevations, and in wild and exposed situations. I am indebted to Drs. Greville and Balfour for specimens from the localities which I have recorded.

The interrupted club-moss appears to have been well known to our earliest botanists, although nothing remarkable has been recorded of its history. The best figure is that in Dillenius;‡ that in the posthumous volume of Morison edited by Bobart§ is also good; Plukenet's|| figure is much too small to give a satisfactory idea of the plant.

* Copiosum observavimus in monte Rhiwn Glyder, supra lacum Llyn-y-cwn. Raii Syn. 108.

† Ed. Llwyd primus in Arvoniam observavit in monte Rhiwr Glyder, supra lacum Llyn-y-cwn prope ecclesiam S. Perisii, nec non in depressis ejusdem montis Glyder qua rupem y Tryvan spectat, quo in loco ipse etiam copiose ante 14 annos vidi. Dillenius, 455.

‡ Dillenius, *Historia Muscorum*, 455, tab. 63, fig. 9.

§ Morison (Bobart) *Hist. Plant.* iii. 264, sec. 15, tab. v. fig. 3.

|| Plukenet, *Phytographia*.

The roots are tough, wiry and tortuous, apparently not long, but very firmly fixed in the ground. The stem is creeping, very strong and tough, and has the surface deeply and irregularly striated: it sends out, at intervals varying from one to four inches, long branches in an erect position; these increase annually in length, the growth of each year being very decidedly marked by the altered length and direction of the leaves; so much so indeed as to give the branches a somewhat jointed appearance. From the marking of each year's growth the name of *annotinum* has probably been given to this *Lycopodium*; a name, however, not exactly appropriate, because the word rather implies of one year's age, leading us to imagine the plant was annual. These upright branches are either single or again divided; and when fertile, which is by no means invariably the case, the spike is usually on the sixth or seventh joint of the branch. After having fruited, or arrived at equivalent age, the erect branches become prone, throw out roots and emit erect branches as before. Connected with this subject Sir J. E. Smith has broached an interesting hypothesis, which I will give in his own words. "The flowering branches are erect, densely leafy, but little subdivided, each terminating in a solitary upright spike, whose scales, being deciduous, seem to leave the branch partly naked, but it afterwards bears proper leaves, except a few diminished ones just under where the spike had been, and produces, in the following season, another spike: hence the jointed or interrupted aspect of the branches."* This assertion would surely never have been made without what the learned author considered sufficient ground, and it is with considerable hesitation that I venture to express an opinion at variance with that of so observant a botanist, but I must confess that the specimens I have examined by no means bear out the opinions I have quoted; indeed, were the hypothesis a correct one, should we not find the spike occupying indifferently any joint of the branch, and not so generally confined to those which are numerically the same? Moreover, in a specimen now before me from the herbarium of Mr. S. P. Woodward, the spike exhibits all the symptoms of incipient decay.

The branches, throughout their length, are clothed with linear leaves, which are very acutely pointed and have minute lateral serratures: those on the older portions are somewhat more scattered and distant, an appearance caused by the elongation of the stem itself, the leaves being persistent, and enduring for very many years. Those on the lower portion of the erect branches are often somewhat reflexed, while on the more recent growth they are erect, more crowded, and

* English Flora, iv. 334.

somewhat imbricated. Smith says that the leaves are ranged in five rows; and an attentive examination of the plant leads one to agree with this remark, still the character is not noticeable, and can only be traced with difficulty.

The spike is oblong, terminal, and completely sessile; the long peduncle, which, in the common club-moss, separates the spike from the leafy part of the branch, is entirely wanting, a character amply sufficient to distinguish this species from the foregoing. The leaves or bracts in the spike are nearly round, yet have a pointed apex; their edges are membranous and jagged, they become reflexed when the seed is shed: in the axil of each is situated a large, conspicuous, reniform capsule, which, when ripe, opens transversely, allowing the escape of numerous minute, sulphur-coloured seeds.

(To be continued).

ART. VI. — *List of Rare Plants found in Devonshire, in the year 1840.* By N. WARD, Esq.

Wellclose Square, June 19, 1841.

SIR,

During the summer of 1840 my father and I made a botanical excursion into Devonshire, and with the kind assistance of Mrs. and the Misses Griffiths and the Rev. W. S. Hore, we succeeded in obtaining many valuable plants, a selection from which I hand you below.

Yours truly,

N. WARD.

To the Editor of 'The Phytologist.'

At or within three miles of Torquay.

Brassica oleracea.

Helianthemum polifolium. This species grows in profusion, and supplies the place of *Hel. vulgare*, which is not to be found here.

Lavatera arborea.

Trifolium suffocatum. Not growing on the sandy sea-shore, but about half a mile inland, in a peat soil, in company with *Trifolium subterraneum*.

Lotus hirsutus.

Vicia sylvatica.

Crithmum maritimum.

Bupleurum aristatum.

Trinia glaberrima.

Smyrniolum Olusatrum.

Rubia peregrina.

Chrysocoma Linosyris.

Lithospermum purpureo-cæruleum.

Anchusa sempervirens.

Orobanche major.

Orobanche barbata. On the roots of
ivy.

Melittis Melissophyllum.

Leonurus Cardiaca.

Beta maritima. It is not generally
known that this plant is an excel-
lent substitute for spinach.

Euphorbia Portlandica.

Near Holne Chase, and on the borders of the River Dart.

Hypericum elodes.

Campanula hederacea.

Anagallis tenella.

Scutellaria minor.

Myrica Gale.

Osmunda regalis. It is remarkable
that this beautiful fern, which
grows with extreme luxuriance on
the banks of the Dart, is very rare-
ly seen on the banks of the East
or West Lyn.

At or within eight miles of Devonport.

Eryngium campestre.

Verbascum virgatum.

Blattaria.

Pinguicula lusitanica.

Bartsia viscosa.

Sibthorpia europæa.

Habenaria bifolia.

Lastræa Oreopteris.

Asplenium lanceolatum.

Hymenophyllum Tunbridgens.

Wilsoni.

Schistostegia pennata.

In the vicinity of Barnstaple.

Aconitum Napellus.

Matthiola sinuata.

Viola Curtisii.

Euphorbia paralias.

Listera cordata. In considerable abun-
dance on Coddan Hill. One spe-
cimen from a number that were
collected, had three leaves.

At or within six miles of Lynton (north Devon).

Meconopsis cambrica.

Euphorbia hiberna.

Allosorus crispus: in company with
Polytrichum alpinum. Only one
plant was discovered.

Asplenium septentrionale: growing in
tolerable plenty in the crevices of a
loose stone wall, facing the north,
at an elevation of between 1000
and 1100 feet.

Bryum palustre.

turbinatum.

Bartramia fontana.

arcuata.

Hypnum dendroides.

Polytrichum urnigerum.

alpinum.

Trichostomum polyphyllum.

At Ilfracombe.

Adiantum Capillus-Veneris, in four distinct localities.

At Clovelly.

Daltonia heteromalla.

Gymnostomum viridissimum.

fasciculare.

truncatulum.

Grimmia maritima.

Hookeria lucens.

Hypnum purum (in fruit).

loreum.

filicinum.

denticulatum.

Trichostomum fasciculatum.

lanuginosum.

ART. VII.—*Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON,
B.A., F.B.S.E. London: Van Voorst. 1841.

(Concluded from page 16).

WE are sorry to find that in speaking of the published illustrations of the Botany of Shropshire, in the former part of this Notice, we so worded our remarks as to make it appear that the 'Botanist's Guide' by Turner and Dillwyn was the only work bearing that title in which such illustrations had appeared, thus excluding the 'New Botanist's Guide' by Mr. Watson. In Turner and Dillwyn's Guide are recorded the stations of 91 species of flowering plants; in Mr. Watson's New Botanist's Guide the number of species is raised to 157, the localities also being much more numerous, and chiefly derived from the previously unpublished notes of botanists of high repute.

Galium cruciatum, With., (*Valantia Cruciata*, Linn.) In 'Mag. Nat. Hist.' viii. 280, Mr. Leighton mentions two small, yellow, glandular bodies, situated on the back of the leaves of *Galium cruciatum*, immediately below their apex; and asks if these bodies are peculiar to the present species, and if any correspondent "can explain their probable use in the economy of the plant." We are not aware of any reply to these enquiries having appeared: the glands are obvious even in dried specimens of *Galium cruciatum*, but we have not observed them in any other species.

Anchusa officinalis, Linn.; "Oakley Park meadows, near Ludlow. Mr. H. Spare." We do not remember having before seen any other habitat for this species, than the Links at Hartley Pans, Northumberland, where it was discovered by the Rev. Thomas Butt: see his letter in 'Memoirs of Sir J. E. Smith,' i. 439.

The three reputed species of *Primula*, namely, *vulgaris*, *elatior* and *veris*, of 'English Flora,' i. 271, and other works, are, in the Shropshire Flora, restored to the rank assigned them by Linnæus, as varieties of his *Primula veris*; α , *officinalis*, being described as the cowslip, β , *elatior*, as the oxlip, and γ , *acaulis*, the primrose; β and γ being connected by a subvariety of *acaulis*, the *P. vulgaris* β of 'Eng. Fl.' l. c. At p. 9 of the 'Phytologist' will be found the description of a new subvariety, forming another link in the chain of evidence on this question.

Of *Hedera Helix*, Linn., Mr. Leighton observes, "the greatest elevation at which I recollect to have seen this plant growing in Shropshire, was near the summit of the Caradoc Hill, where it most

magnificently overspread the perpendicular and exposed face of one of the rocks."

Gentiana Amarella, Linn. "A variety with perfectly double flowers has been observed by the Rev. T. Salwey! at Trefonen, Oswestry."

Cuscuta Epilinum, Weihe, appears to be the only species of this genus occurring in Shropshire. It was "discovered by J. E. Bowman, Esq. ! July 29th, 1836, on flax, in a field near Croesmere, Ellesmere." See 'Mag. Nat. Hist.' N. S. II. 343.

Shropshire can boast of possessing all the British *Droseras*. Under *Dros. rotundifolia* is recorded a variety, β , *ramosa*, which "occurs, not unfrequently, at Bomere Pool, of stouter and taller habit, with more numerous leaves, and the raceme forked or branched. On some specimens a simple raceme occurs, as well as the forked one."

Scheuchzeria palustris, Linn. Two Shropshire localities are given for this very rare plant, Bomere Pool and Shomere Moss, both near Shrewsbury. In 'Eng. Fl.' II. 199, Lakeby Carr, near Boroughbridge, Yorkshire, is stated to be the only British station: in addition to this two others are given in Hook. 'Brit. Flora,' 174; so that we have now five recorded stations for a plant which, previously to 1807, was not known as a native of Britain.

Chrysosplenium alternifolium, Linn. "In all the Shropshire specimens which I have examined, of both species of *Chrysosplenium*, the calyx has been uniformly found to be 4-cleft, and the stamens 8; 4 of them alternating with, and 4 opposite to the sepals." This precisely accords with the result of our own observations on these plants.

Dianthus plumarius, Linn.; distinguished from *Dia. Caryophyllus* by the glaucous leaves being "finely serrulate at the margins" throughout their whole length, and not at the base only, as in the latter species; the flowers also have the outer edge of the petals deeply laciniated, while those of *Caryophyllus* are only sharply toothed. Mr. Leighton observes that "the only true stations known for *Dia. Caryophyllus* are the Kentish castles;" the old authors record a number of localities for it, but the plant growing in most of them is probably *plumarius*, as it certainly is at Ludlow in Shropshire and East Ham in Essex, while the plant of Rochester Castle in Kent is as certainly *Caryophyllus*.

Spergula vulgaris, Bonningh. Distinguished from *Sperg. arvensis*, with which it grows, by the seeds being "sharply keeled, and covered with white papillæ."

Localities are recorded for the rare *Anemone apennina* and *ranunculoides*: and the local *Ranunculus parviflorus* is said to be "not

uncommon ;” as indeed would appear from the long list of localities following the description.

Galeopsis versicolor, Curt. Mr. Leighton remarks, “I sowed seeds of this plant in my garden in 1834, where it has now completely naturalized itself ; but I cannot perceive, on a comparison with the dried specimens from which the seeds were taken, any change in its characters, or any tendency to run into *Gal. Tetrahit* (of which it has been considered a variety), of which species I have never observed a single specimen in my garden.” This was written in 1838.

Lathræa squamaria, Linn. The economy of this singular parasite, and its mode of attachment to the roots of the trees on which it grows, have been most successfully investigated by Mr. Bowman, who communicated the results of his researches to the Linnean Society, in a valuable paper read Nov. 3rd, 1839. This paper, with two exquisite plates of details, was published in the ‘*Linn. Transactions*,’ xvi. 399 ; and an abstract appeared in the ‘*Mag. Nat. Hist.*’ v. 45, illustrated by three excellent wood-cuts, copied from Mr. Bowman’s original drawings. The 1st exhibits a perpendicular section (highly magnified) of one of the minute tubers situated at and near the extremities of the forked fibres of the root, showing the insertion of the tap-shaped base of the tuber into the alburnum of the root of the tree ; the 2nd is a view of the longitudinal section of a leaf, through one of the parallel, perpendicular cavities or chambers excavated in the interior, each of these cells communicating with the external atmosphere by means of a very narrow opening “between the incurved lower edge of the leaf and the underside of the leaf-stalk ;” the 3rd cut exhibits a magnified view of a transverse section of one of the subterranean leaves, wherein are shown all the cavities or cells divided in the middle, and lined with the minute, stalked papillæ or glands, which perform the various functions of the absorbing and perspiring cuticular pores of most other plants, these pores being absent from the external cuticle of the subterranean parts of *Lathræa*.

One of the stations for *Lathræa* is given on the authority of Mr. Dovaston ; who says it is “naturalized to excess on hazel-roots at the Nursery, Westfelton.” It will not perhaps be thought out of place here, if we introduce a quotation in reference to this *naturalization*, from a delightful article ycleped “Chit-chat,” by Mr. Dovaston, in ‘*Mag. Nat. Hist.*’ v. 503.

“*Von Osdal*. So you have at last succeeded in getting the toothwort (*Lathræa squamaria*) to grow on the roots of the hazel ?

“*Dovaston*. Not until I had utterly despaired. It was four years, and some five,

before it came up visibly. I gathered the seeds in Erddig woods, where, you may remember, we saw it in profuse luxuriance. It will, however, turn pink or purple when very much exposed to the light, notwithstanding the remark of our learned friend, in his scientific and elaborate essay; for having cut away some of the hazel branches, to bring it more in view of the walk, the sunbeams in a few days turned it so very pinky and purple, that some ladies were very much struck with the beauty and delicacy of its colours, though the plant itself is rather of a repulsive and cadaverous aspect."

Of *Bidens tripartita*, Linn., "specimens not unfrequently occur, in which the leaves are all undivided; but attention to their being petio- late, and to the outer involucreal bractees being unequal, serrated, and many times longer than the flowers, will at once obviate any doubt which may by possibility arise, as to which species the plant ought to be referred."

The list of Salopian Orchideæ comprises 21 species; among which we are glad to recognise the names of 17 of our oldest friends, as well as of 4 rarer species with which our acquaintance commenced at a later period. The former include *Orchis ustulata*, rare; *Habenaria viridis*, *chlorantha* and *bifolia*, neither of them unfrequent; *Ophrys apifera*, not unfrequent, and *muscifera*, very rare; *Neottia spiralis*, not common; *Listera ovata*, frequent; *Neottidium Nidus-avis*, not common; *Epipactis latifolia*, not unfrequent, and *palustris*, not common. The four rarer species are *Gymnadenia albida*, *Ophrys aranifera*, *Listera cordata*, all very rare in Shropshire; and *Cephalanthera ensifolia*, rare.

Gymnadenia albida, Scop. *Orchis albida*, Sm., 'Eng. Fl.' iv. 18. *Habenaria albida*, Br., Hook. 'Brit. Fl.' 376.

"The structure of this plant is certainly that of *Gymnadenia* not *Habenaria*. I am far from being certain that this genus and *Aceras* ought to be retained separate from *Orchis*. *Gymn. conopsea* comes so very near to *Orc. pyramidalis* in habit and appearance, as often to be hardly distinguishable without examination, and the structure of the anther is scarcely sufficiently different to constitute a genus."—*Babington*.

Neottidium Nidus-avis, Schltd. *Listera Nidus-avis*, Hook. 'Fl. Scot.' 253; 'Eng. Fl.' iv. 39; 'Br. Fl.' 379. The non-parasitical nature of this plant, and its mode of propagation, have been determined by the Hon. and Rev. W. H. Herbert; the results of whose researches we here lay before our readers.

"The Hon. and Rev. W. H. Herbert has investigated the economy of this plant, which has been considered as parasitical on the roots of trees. He found several dead flower-stalks which had grown out of bundles of fleshy fibres, diverging every way, but the fibres were falling apart, and the plant appeared to have died as an annual after flowering. On stirring the ground further, at a short distance, he discovered a live bundle of similar fibres, with a very strong white shoot or eye, like the dormant shoot of a perennial herbaceous plant, which was evidently to produce a flowering-stem in the next summer. Pursuing his researches he soon discovered similar bundles of dif-

ferent sizes, which were clearly immature, and not ready to sprout in the following spring. On examination of the smallest, he found that it grew from the end of a half-dead fibre; and recurring to the dead plant which he had first taken up, he perceived that its several fibres, or at least many of them, though dead at the base, *were alive at the other end*, and beginning to bristle or protrude young fibres near the extremity. By further research, he clearly ascertained that the plant *dies after flowering*, but is capable of *reproducing a new plant* from the point of each of its fibres after they have fallen apart, the extreme point becoming the eye or shoot, which increases in size till its maturity, and the lateral bristles becoming the fibres by which the plant is to be nourished and afterwards propagated. The young roots continue thus to increase in bulk under ground till they come to the flowering age, when they push up vigorously, die and spawn again in the same extraordinary manner.”—p. 434.

We regret that we have room for only one more extract, which is a graphic description from the pen of J. F. M. Dovaston, Esq., of a remarkable monœcious variety of the common yew, with pendulous branches, (*Taxus baccata*, var. β . *Dovastoniana*, Leighton), growing in that gentleman's grounds at Westfelton, near Shrewsbury, and figured in Loudon's 'Arboretum Britannicum,' iv. 2083, fig. 1990.

“It is about sixty years since my father John Dovaston, a man without education, but of unwearied industry and acute ingenuity, had with his own hands sunk and constructed a pump; and the soil being light, it continually fell in; he secured it with wooden bars, but foreseeing their speedy decay, he planted near to it, a Yewtree, which he bought off a poor cobbler for sixpence, who had plucked it up from a hedge-bank near Sutton; rightly judging that the fibrous and matting tendency of the yew-roots would hold up the soil. They did so; and independent of its utility, the yew (as you have to your great admiration witnessed) grew into a tree of the most striking and distinguished beauty; spreading horizontally all around to a diameter of 63 feet, with a single spiral leader to a great height; each branch in every direction dangling in tressy verdure down to the very ground, pendulous and playful as the most graceful birch or willow, and visibly obedient to the feeblest breath of summer air. Its foliage, like that of the asparagus, is admirably adapted for retaining the dew-drops; and at sunrise it would seem that Titania and a bevy of her fairies had been revelling the night around it, and left their lamps in capricious frolick, so glitteringly coruscant is every branch with its millions of every-coloured scintillations, as it were all a-blaze. To descend, however, to prose:—this lovely tree has food for the mind of the philosopher, as well as for the eye of the poet; for, strange to tell, and what few unseeing believed, though a male, and smoking like furnace, or a very volcano, with farina to the blasts of February, it has one entire branch self-productive, and exuberantly profuse in Female berries, full, red, rich, and luscious; from which I have raised 17 plants, every one of which already markedly partakes largely of the parents' *pensility*. Of these seedlings several have been presented to the following friends. * * The remaining trees are still in my possession, and are intended to be distributed to Societies or persons who will undertake to plant them in situations where they are likely to be preserved. Berries will also, at the proper season, be given with pleasure to such persons who may be curious in these matters.”—p. 497.

The plates, 19 in number, are a somewhat novel feature in a local

Flora; of their utility, however, there can be but one opinion. With the exception of Nos. 5 and 11 they are filled with magnified figures and sections of the fruit and its appendages of such closely-allied species as are best distinguished by a reference to those parts; including 9 species of *Potamogeton*, 9 of *Rumex*, 27 of the 34 species of *Umbelliferæ* found in Shropshire, all the British *Carices*, and 18 species belonging to other genera of *Cyperaceæ*. In plate 5 are shown the variations in the form of the leaves and mode of inflorescence of *Che-nopodium polyspermum*, Linn., the erect, acute-leaved form of which, at the suggestion of his friend Mr. Davall, Sir J. E. Smith described and figured as a distinct species under the name of *Chen. acutifolium*, in 'Eng. Bot.' xxi. t. 1481: and plate 11 is entirely filled with details explanatory of the curious economy of *Colchicum autumnale*.

In concluding this brief and imperfect notice of the 'Flora of Shropshire,' we feel that we cannot too strongly recommend it to the notice of our readers. For although, as a local Flora, it professes to treat only of the plants of a single county, that county produces more than half the number of species of flowering plants indigenous to the kingdom. The descriptions are unusually full and carefully drawn up: and when we add that some of the less understood species have been illustrated by the critical remarks and observations of some of our most eminent botanists, as for instance, many of the *Hieracia* and *Orchidæ* by Mr. Babington, the oaks by Professors Don and Graham, and the *Cerasi* by Dr. Bromfield and Messrs. Borrer, Dovaston and Forster, and that throughout the work there is constant reference to the state of the science on the continent and to the works of modern continental botanists, we think we have good grounds for saying that the 'Flora of Shropshire' should be in the hands of every one who feels interested in the botanical productions of the British isles.

ART. VIII.—*Analytical Notice of No. 54 of the 'Supplement to the English Botany of Sir J. E. Smith and Mr. Sowerby.'* London: Longman & Co., Sherwood & Co., and the Messrs. Sowerby.

THE recently published number of this valuable and important work contains interesting descriptions of *Myriophyllum alterniflorum*, DC. *Bryum Ludwigi*, Schwægr. and *Bryum annotinum*, Hedw.; and descriptions and figures of *Herniaria ciliata*, Bab.; *Potamogeton prælongus*, Wulf.; *Orobanche barbata*, Poir.; *Atriplex deltoidea*, Bab.; and *Lecidea Salweii*, Borr.

We insert the following concise analysis of their characters and distinguishing marks.

Myriophyllum alterniflorum, DC. Sterile flowers alternate, about 6, in a leafless spike; spike nodding when in bud, afterwards erect; fertile flowers in axillary whorls of about 3 flowers, at the base of the spike: *tab.* 2854.

Stagnant pools and ditches.

St. Leonard's Forest, Sussex. Whixall Moss; near Colemere; Berrington Pool; Wyford Vownog, near Westfelton: all in Shropshire. Small lake near Snowdon. Braid Hills, near Edinburgh. Isle of Wight. Guernsey.

Smaller and more elegant than *M. spicatum*.

Bryum Ludwigii, Schwægr. Stems ascending; leaves ovate, concave, obtuse, flaccid, entire, their nerve ceasing below the apex; capsule pendulous, sub-pyriform; lid conical, obtuse: *tab.* 2855.

Clova Mountains.

Remarkable for its lax, obtuse, pellucid foliage, which is glossy and scarcely twisted when dry.

Bryum annotinum, Hedw. Stem very short; leaves crowded, erect, lanceolate, nerved, subserrulate at the apex; capsule oblong-pyriform, pendulous; lid convex, apiculate: *tab.* 2856.

Moist sandy places, usually barren; frequent.

Winwick Stone Delph, near Warrington.

Closely resembling *B. nutans*, but with smaller, more crowded and less deeply coloured foliage; the barren shoots bearing club-shaped fingered gemmæ in the axils of the leaves. Differing also from *B. carneum* in the form of the capsule and greater length of the fruit-stalk.

Herniaria ciliata, Bab. Stems herbaceous, prostrate, clothed with very minute decurved hairs; leaves orbicular-ovate, ciliated; clusters of sessile flowers axillary upon the lateral branches and distinct: *tab.* 2857.

Gravelly soil; tops of walls and hedge-banks.

Lizard Point, Cornwall. Near Port de Fer, Guernsey.

Usually confounded with *H. glabra*, *t.* 206, but very distinct.

Potamogeton prælongus, Wulf. Leaves all submersed, elongate-oblong, amplexicaul, obtuse and hooded at the end, entire; stipules without wings; nut obliquely ovate, keeled on the back when dry; spike cylindrical, many-flowered; peduncle very long, cylindrical: *tab.* 2858.

Ditch adjoining the river Thames, at Caversham Bridge near Reading. River Wavency, between Scole and Beccles. Scotland, frequent. River Blackwater, Co. Kerry, Ireland.

Leaves membranous, with about 5 strong nerves extending quite from the base to the apex, with several (about 2) weaker intermediate nerves and numerous transverse

reticulations, pale green. *Spike* about 2 inches long. *Peduncle* very long, often 1 foot or more, curved, solitary. *Nut* compressed, with 1 large central and 2 smaller keels upon the back when dry, but rounded when wet.

Orobanche barbata, Poir. Sepals with 1 prominent nerve and several faint ones, ovate, with a long subulate point, or bifid, as long as the bent tube of the corolla; lips of corolla obscurely denticulated and wavy, upper 2-lobed, lower with 3 nearly equal lobes, central one longest; stamens inserted near the bottom of the tube, glabrous except at the base within; style glabrous, minutely downy above: *tab.* 2859.

Parasitical upon *Hedera Helix*.

St. Ives, Cornwall. Berry Head, Torquay and Combe Martin, Devonshire. On Worle Hill by Weston-super-Mare, Somersetshire. Barmouth and Oystermouth Castle, near Swansea, in Wales. Lexlip Castle and Mucruss Abbey, Ireland. Isle of Wight. Guernsey.

Usually confounded with *O. minor*, *t.* 422, which, independently of all structural differences, is as constantly parasitical upon *Trifolium pratense* as this is upon *Hedera Helix*. *Stem* 6—18 inches high, glandular-pubescent, purple. *Corolla* cream-coloured with prominent purple nerves, ultimately reddish-brown, externally glandular; margins of upper lip deflexed, of the lower one incurved. *Stigma* slightly 2-lobed, its disk yellow.

Atriplex deltoidea, Bab. Stem erect, herbaceous, with ascending branches; leaves all hastato-triangular, unequally toothed, opposite; enlarged calyces ovate-triangular, toothed, tuberculated on the back, longer than the fruit, arranged in a compound, many-flowered panicle; seeds smooth and shining: *tab.* 2860.

Waste places; not uncommon.

Primrose Hill, near London. Leicestershire. Kent. Shropshire. Guernsey. Sark.

Distinguished from *A. patula* by not having its upper leaves entire, its enlarged calyx not triangularly rhomboid and entire, its spikes not interrupted and simple, nor its branches elongated, its fruit smooth and shining, not opaque and rough.

Lecidea Salweii, Borr. Thallus of small, white, depressed, bluntly-lobed, tumid, tartareous scales; patellulæ superficial, slightly raised, lurid-brown, margin paler, narrow, flexuous; substratum thick, pale: *tab.* 2861.

On the ground, in rocky situations.

Craig Breiddin, Montgomeryshire; near Drws y Nant-Isaf by the road from Bala to Dolgelly, and above Gelli-rhûd near Barmouth; above Twll-dû: all in North Wales. Near Sennen, Cornwall. In the Valley of Rocks at Linton, North Devon. Priest-Leap Mountain near Dunkerron, Ireland.

Patches of irregular outline and considerable extent, composed of scales rarely a quarter of an inch over, closely attached to the substance on which it grows. *Patellulæ* about the size of poppy-seed, produced upon the scales, not in the interstices; slightly elevated, often clustered.

Nearly allied to *Lichen quadricolor*, *t.* 1185, and *Lichen glebulosus*, *t.* 1955, particularly the latter. Referable to the genus *Biatora* of Fries. Named after its discoverer, that accurate lichenologist, The Rev. Thomas Salwey, of Oswestry, Shropshire.

ART. IX.—*Varieties; Original and Select.*

1. *LYCOPodium clavatum*. I may observe that this plant makes a beautiful object when cultivated in a greenhouse, and suspended from the roof or side walls. I have seen it in such situations with branches from three to four feet long, flowering most abundantly, and having a peculiarly imposing appearance: in this state it is not readily recognized by persons familiar with it in its ordinary localities.—*D. Moore*; **Dublin, May 24, 1841.*

2. *Plants in the neighbourhood of Falmouth, Cornwall.* This corner of England is by no means devoid of interest to a lover of Botany. I think thou wilt like to know what plants I have already seen. The first I was struck with was *Cotyledon Umbilicus*, which grows in the greatest profusion; not a hedge but is studded with it. The hedges here are banks of earth or loose rocky stones, and are overgrown with verdure, mostly affording on their top a convenient foot-path. In a lane, close by, grows *Sibthorpia* in abundance; also *Anchusa sempervirens* quite commonly. Thrift of course, on the coast; and some species of *Cochlearia*, one of which is said to be *Danica*, but I cannot see that the pouch is reticulated with veins. *Cardamine hirsuta* is very common. *Senebiera didyma* is a weed growing against the walls of houses. *Smyrnium Olusatrum* plentiful. *Viola lactea*, with its peculiar leaves, almost as common as *canina*. *Myrica Gale* grows in the same marsh as *Menyanthes*. On a promontory crowned with Pendennis Castle grow *Mœnchia erecta*, *Silene maritima*, *Spergula subulata* and *Ranunculus parviflora*. *Melittis grandiflora* grows in two or three localities near the sea. *Oxalis corniculata* is said to grow sparingly in the hedges. All the plants mentioned, except *Oxalis*, I have seen myself; no doubt there are others, equally rare, to be found as the year advances. The *Melittis* found here agrees with the description of *grandiflora*, except in the calyx, which seems more like that of *Melissophyllum*. *Vaccinium Myrtillus* is common.—*Daniel Peirson*; *Falmouth, 5th month (May) 28, 1841.*

3. *Rare Plants in West Surrey.* *Ribes rubrum* and *nigrum*, the former in many places, the latter abundantly in one place, by the side of the Mole near Esher: perfectly wild and completely naturalized. *Turritis glabra*, abundant and fine by the road-side between Hampton and Sunbury. *Diplotaxis tenuifolia*, a rare plant in Surrey, is very abundant above Walton Bridge. *Cerastium arvense*, on banks by the side of the Thames below Walton Bridge.—*J. S. Mill*; *Kensington, June 1, 1841.*

4. *Isatis tinctoria* is now growing in prodigious luxuriance in the chalk-quarries close to the town [of Guildford]. It grows (in many instances) out of clefts in the precipitous chalk cliff, and makes almost a bush of flowers from the same root. *Geranium lucidum* I again found in my old locality, near St. Catherine's Hill.—*Id.* June 8, 1841.

5. *Aconitum Napellus*. This beautiful plant occurs abundantly in various localities in the immediate neighbourhood of Leominster in Herefordshire: its growth is luxuriant, and its habitat is invariably the bank of one of the numerous rivulets which so abound in that fluviatile district. It is introduced into the gardens in the town, and grows with health and vigour when removed from its native humid station. Sir W. J. Hooker, in 'Brit. Flora,' i. 264, mentions this as "a doubtful native," but I have seldom seen a plant which exhibits more manifest symptoms of being indigenous. *Edward Newman*; 45, *Wellclose Square, June 21, 1841.*

* In a letter to E. Newman.

6. *Inula Helenium*. This noble plant grows in a field at Stoke, near Leominster, in great luxuriance, sometimes attaining the height of 7 feet. The exact site is at the foot of some unusually tall poplars; indeed so conspicuous are these poplars that they serve as a guide to the spot, even from a distance of two miles. I have also seen it near Knightsford Bridge, in a wood on the right hand, close adjoining the turnpike road between Worcester and Bromyard.—*Id.*

7. *Pelargonium tricolor*. In making a short cut over a stony hill (primitive sandstone, the general rock of this country) covered with low bushes, I noticed in the fissure of a rock, the elegant *Pelargonium tricolor* in blossom. This to me was like recognizing an old forgotten acquaintance, of a pleasant character; for the existence of this old but elegant and delicate inhabitant of English greenhouses, had quite passed from my mind; till (scarcely raised above the stone on which it grew) a large cluster of its pure white blossoms, shaded into blackish crimson, met my eye in this inhospitable region, and revived many associations in connection with the persons under whose care I had seen it cultivated.—*James Backhouse's Journal, part 7: South Africa.*

8. *Spontaneous appearance of Plants*. Eaton mentions [the raspberry] by the name of *Rubus Idæus* among the native plants. It grows and spreads abundantly, so as quickly to overspread a large space of ground. I have never seen it in the primitive woods; but whenever a clearing is made the raspberry appears. * * The bushes are extremely numerous on every road-side and almost in every field, growing in the corner of the fences, springing up abundantly in ground recently cleared and "burnt over;" and invariably forming a great bush around every dead stump or neglected log. * Poplars are very rarely seen in the primitive forest: but if a clearing be made, and neglected for a few years, the ground will be covered with a new growth of trees, usually called "second growth timber," consisting almost wholly of poplars, provided the land be slightly disposed to wetness. The cause of this I cannot in anywise explain. It is not confined to the case I have mentioned: it has very often been observed that when forests are destroyed, they are succeeded by a spontaneous growth of plants of altogether different species from those which originally occupied the ground. How are they produced? From seed, certainly: but whence comes the seed? Has it lain in the ground for uncounted ages, waiting a favourable opportunity to spring up? I cannot tell; this is one of those mysterious things which I am not at all adequate to unfold; I can only notice the fact.—*Gosse's 'Canadian Naturalist.'*

9. *Typha latifolia*. Have you ever examined any of that large patch of bull-rushes (*Typha latifolia*) which grow in the bottom of this field? It is difficult to get at them, as it is a complete bog all around, but they are so curious that they repay the trouble of obtaining them. The thick cylindrical head appears like a fine but very closely set brush radiating from the axis or stalk, which it covers for about six inches. On picking out a lump of what we may call the bristles of this brush, we are surprised to see that we have a handful of the softest down, that which before was not larger than one's thumb, now, on being freed from the stalk, filling one's hand; and the hiatus made by the loss is filled up by the expansion of the remainder so completely as scarcely to be perceivable. In short the whole head is composed of this very expansive down; and I am told that poor persons sometimes collect quantities of it to make beds, which are said to be soft and elastic.—*Id.*

10. *Red and Green Snow*. In the 44th No. of Taylors' 'Annals and Magazine of Natural History,' is the translation of a paper from Weigmann's Archiv. (Heft. i. 1840), entitled "On Red and Green Snow; by the late Prof. Meyen:" from which we learn

that M. Ch. Martius, who twice accompanied the French expedition to Spitzbergen, is of opinion that the colouring matter of red snow, *Protococcus nivalis*, and of green snow, *Prot. viridis*, "are one and the same plant, only in different stages of development." Prof. Meyen, however, considers it to be still a question whether the colours of the snow are really produced by different states of the same species, but he has no doubt that the so-called Protococci belong, not to the vegetable but to the animal kingdom, being true Infusoria; that *Protococcus viridis* is identical with Ehrenberg's *Euglena viridis* and *Prot. nivalis* with his *Eug. sanguinea*, (the *Enchelis sanguinea* and *Pulvisculus* of authors); that these Enchelides "exhibit at times a perfectly motionless state, in which they appear spherical," and that in this state they have been described as Protococci; that "it is these spherical, reposing animalcules which often appear in almost incredible numbers, and, surrounded with a kind of slime, form more or less thick skins, which frequently cover the bottoms of shallow standing waters;" and it is in consequence of observing that these animalcules, after long remaining in this passive and inert state, occasionally resume their activity, that so many philosophers have spoken of a metamorphosis of Infusoria into plants, and vice versâ.—*Ed.*

ART. X.—*Proceedings of Societies.*

LINNEAN SOCIETY.

AFTER the recess we intend to give full reports of the botanical papers read at this Society.

BOTANICAL SOCIETY OF EDINBURGH:

The future meetings of this Society will be regularly reported: the omission in the present instance was not accidental, but unavoidable.

BOTANICAL SOCIETY OF LONDON.

June 4.—John Reynolds, Esq., Treasurer, in the Chair. Dr. Killikelly (of Indiana) presented a specimen of *Tillandsia Usneoides* from the banks of the Mississippi.

Dr. John Lhotsky read a paper "On the Periodical Decortication of the genus *Eucalyptus* in Australia." After describing the appearance of the bark hanging in strips from the trunks and branches of the Eucalypti, Dr. Lhotsky observed that in addition to this singular effect, the varying colour of the denuded trunks and branches, from pure white through all shades to deep red, presents an equally original and characteristic aspect. Little is yet known as to the period of decortication; and the questions to be determined by future observers are, 1st, Whether the decortication of the different species of Eucalypti takes place at any certain season or is dependent on other circumstances; and 2dly, Whether all the species decorticate at the same period, or the different species at different times. The cause of a phenomenon apparent in so great a number of a genus scattered most widely over the Australian continent, is matter of importance for physical Geography, and for Botany especially. And Dr. Lhotsky thinks a clew towards its explanation may be obtained through that botanical axiom, that the concentric layers of wood and bark are the reverse of each other, the former increasing externally, the other internally. As exogenous plants (like the Eucalypti) increase by annual additions of new matter on their outsides, it is plausible to say, that as the growth of the Eucalypti, in almost all the species, is very rapid, the alburnum of these trees extends so rapidly that the liber first becomes considerably distended, then cracks, and finally separates from the trunk. The New Hollanders have largely taken advantage of this phenomenon. The huts or sheds temporarily occupied by them are made of the sheets of the bark of the Eucalypti. It is on such sheets that they repose, and protect themselves from the humidity of the soil. From such sheets also they make their most rude canoes, (with which, however, they only navigate the lakes); they bind them in an adequate manner, and fill up the crevices with soil and melted gum. The New Hollander possesses neither flint nor steel; and as he finds it difficult to produce fire, he carries with him on his aquatic excursions, a piece of a large ignited branch of an Eucalyptus, which, from its resinous nature, burns like a torch. In conclusion, Dr. L. observed,—“Taking all this, and what I have said in previous papers, together, the New Hollander may, with some degree of propriety, be called the ‘Eucalyptus-man.’”—*G. E. D.*

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No. III.

AUGUST, MDCCCXLI.

PRICE 6D.

ART. XI.—*A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN. (Continued from page 20).



THE SAVIN-LEAVED CLUB-MOSS.

LYCOPodium ALPINUM of Authors.

LOCALITIES.

- England. Northumberland, on the Cheviots; Cumberland, Place Fell and Swarth Fell; Durham, Cronkley Fell and near Egleston; Lancashire, near the Holme about five miles from Burnley, and Coniston Fells; Cheshire, moors above Micklehurst; Derbyshire, mountains near the Derwent. *Turner and Dillwyn.*
- Wales. Denbighshire, moors, very common; *Turner and Dillwyn.* Caernarvonshire, very common. Merionethshire, on Cader Idris. Plinlymmon, *Mr. Lees.*
- Scotland. Very common on elevated districts.
- Ireland. Counties Donegal, Antrim, Down, Kerry.

THE Savin-leaved Club-moss, as its name of *alpinum* implies, is completely an alpine plant: it occurs in great abundance on the elevated tracts in Scotland, where I have myself seen it in localities too numerous to detail; and have received a long list of habitats from Drs. Greville and Balfour, Mr. Graham, &c. In several of the adjacent islands it is also found; and Mr. Edmonston has sent a specimen from Unst, the most northerly of the Shetlands; this specimen is ticketed "*Lycopodium clavatum*" (which species is not in the collection), and unfortunately is so recorded in a late number of the 'Annals and Magazine of Natural History.*' Mr. Edmonston, with a laudable desire to make his list as correct as possible, sent the plants themselves for comparison; and it has happened that I have had frequent opportunities of examining the collection. In North Wales it seems to be abundant on the high ground in Caernarvonshire; particularly on the ascents of Snowdon, Glyder, David, Llewellyn, &c., but it seldom occurs immediately on their summits. Mr. Janson, Mr. Kippist, and others have given me similar habitats: in Denbighshire, and on Cader Idris in Merionethshire, it occurs more sparingly. In England, Northumberland, Cumberland, Westmoreland, Durham, Yorkshire, and Lancashire produce the species in some abundance; Miss Beever informs me it is "plentiful on the Fells near Coniston." In Turner and Dillwyn's 'Botanist's Guide,' i. 193, a single Cheshire habitat,—"Moors above Micklehurst,"—is recorded on the authority of Mr. Bradley; and in the same work (i. 192), on the authority of Mr. J. Martin, it is said to have been found on "Mountains near the Derwent" in Derbyshire. In Ireland I found it sparingly in the counties Donegal and Kerry; and Mr. Moore has seen it on Knocklayd, Co. Antrim, near Belfast, and on the Mourne Mountains. Mr. Ball of Dublin writes me that he found it on Mangerton; and having spelled the name for the benefit of that nuisance to tourists, the self-styled Sir Peter Courtney, that worthy engraved it on a flat stone with the point of his knife, and doubtless displays his botanical lore for the edification of future tourists, and to the profound admiration and humiliation of his brother guides.

Our early botanists have so mixed up this with another continental species, *Lycopodium complanatum*, that it is impossible to decide to which their observations are to be referred. I have little doubt that Gerarde describes *alpinum*, although his figure evidently represents *complanatum*, and *Tragus* appears to be unacquainted with it altoget-

* In the same list *Lomaria spicant* appears as "*Polypodium vulgare*."

ther, his figure being likewise that of *complanatum*. Dillenius, as remarked by Sir J. E. Smith, was well acquainted with both species, but unaccountably misquotes Tragus, Gerarde, Dalechamp, and the two Bauhins, under his description of *L. alpinum*: owing to this confusion it is unsafe to quote any of the virtues, real or supposed, that have been assigned by these patriarchs of the science to either species.

We are informed by Sir W. J. Hooker that *Lyc. alpinum* is used by the inhabitants of Iceland as a dye for their woollen cloths. "A vast heap of *Lycopodium alpinum* lying before the priest's house drew my attention, and on enquiry I found that it was used for the purpose of giving their wadmal* a yellow dye, which is done by merely boiling the cloth in water, with a quantity of the *Lycopodium* and some leaves of *Vaccinium uliginosum*. The colour imparted by this process, to judge from some cloth shown me, was a pale and pleasant, though not a brilliant yellow." †

The savin-leaved club-moss is a pretty plant, in its foliage much resembling the savin from which it has derived its English name: it retains throughout the winter a much brighter green than either of its congeners: in summer the young shoots have a blue tint. According to Sir W. J. Hooker it is the badge of the clan Macrae.

The roots are tough, strong, wiry, and generally tortuous and branched; they occur at intervals varying from two to four inches, and are somewhat darker in colour than those of *Lyc. clavatum*; they fix the plant firmly to the soil.

The stem is procumbent, extending to a great length, and throwing up at short intervals clusters of branches, which, being twice or thrice dichotomously divided, give the plant a densely tufted appearance: the tips of the branches or divisions in each bunch or tuft are of nearly equal length, the extremities terminating on a level. When the plant is about to produce seed, spikes are thrown out from the extremities of these branches without any intermediate foot-stalk: the spikes are rather more than half an inch in length, and somewhat exceed the unfruitful branches in thickness, and are of a paler, yellower green colour than the rest of the plant: they are almost invariably in double pairs, plainly exhibiting the repeatedly dichotomous division of the branches which they terminate.

The entire plant is covered with elongate, harsh, indistinctly keeled, obtusely pointed leaves; the edges of the leaves are without perceptible teeth or serratures, and the points have no acute or filamentous

* Wadmal is the name of the woollen cloth usually worn by the Icelanders.

† 'Journal of a Tour in Iceland, in the year 1809,' i. 214.

termination: the leaves or bracts in the spike are membranous, flat, scale-like, serrated at the sides, dilated at the base, and terminating in a prolonged point at the apex. After the escape of the seeds the spikes bend downwards, assuming a semicircular form, and the bracts become reflexed.

The thecæ are sessile, of a pale yellow colour, and in form much resembling a kidney bean.

(To be continued).

ART. XII. — *Short Account of an Excursion to Cobham, Kent.*

By AL. IRVINE, Esq.

Albury, June 21, 1841.

SIR,

If you think the following short account of a visit to Cobham, Kent, worth your notice, you are welcome to insert it in 'The Phytologist,' to which I wish much success.

Yours very truly,

AL. IRVINE.

To the Editor of 'The Phytologist.'

ON Whitmonday, May 31, 1841, my friend Mr. Wm. Pamplin, jun. and myself left London Bridge in one of the steamers about 8 o'clock A. M., and arrived at Gravesend by half-past 10. We then started for Cobham across the fields, a walk which may be accomplished with ease in little more than an hour. Among the corn we found *Papaver hybridum*, *Adonis autumnalis*, *Ajuga Chamæpitys*, *Bupleurum rotundifolium*, &c.

After passing through the village of Cobham towards the park, beyond the carpenter's shop and yard, in a corner partly in the wood and partly on the little waste ground between the cornfield and the wood skirting the park, we gathered a species of *Tragopogon*,* which Mr. Pamplin, who showed me the spot, told me, as far as I can recollect, is an undescribed or unrecognised species.

From the spot where the *Tragopogon* grows we walked along the verge of the park, having the park on our left hand and the corn-fields on our right, and in a few minutes arrived at most magnificent plants of *Astragalus glycyphyllos*, growing in great abundance; we also ob-

* See next page.

served a few plants of *Lathyrus Nissolia*. Hence cutting across, that is, avoiding the windings of the park, and going over a rising part of the ground, we reached the field where *Althæa hirsuta* is this year in great profusion. This field extends quite up to the park, and is perhaps about half an hour's easy walk from Cobham. *Salvia pratensis* is found in the same spot, all along the bank on the extremity of the field, and close to the park. The ground rises as one walks towards Rochester, and that city is seen after passing along the head of this field and part of the next.

After collecting some specimens of *Althæa hirsuta* and *Salvia pratensis*, the latter plant being at that time most luxuriant and beautiful, we crossed the fields by a path which leads to the road between Cuxton and Halling, on the Medway. On the steep chalky downs or pastures about midway between these two villages, we found numerous and fine plants of columbine (*Aquilegia vulgaris*), the flowers of which were of a deep and exquisite blue; also specimens of *Orchis fusca* and various other Orchidaceous plants. My friend Mr. Pamplin had the pleasure of finding a curious variety of *Ophrys muscifera*. Between an ancient religious house and Cuxton, going towards the latter place on the right hand, and nearer to the said house than to the village of Cuxton, we gathered *Anchusa sempervirens* under the hedge; a plant very rarely found, but which has been occasionally noticed as belonging to this spot, since the times of the earliest botanists. Near the road between Gad's Hill and Gravesend, grow *Lathyrus latifolius* or *sylvestris* and *Fumaria parviflora*.

These places, together with the marshes about the Medway, will well repay the labour of investigation; especially to such as have a taste for the cultivation of local Botany.

[In a subsequent communication dated July 8th, Mr. Irvine kindly favours us with some remarks on the *Tragopogon* mentioned at p. 36, which Mr. Pamplin has observed in the same spot at Cobham for several years. Mr. Irvine also added from Koch's 'Flora Germanica,' a description of *Tragopogon orientalis*, *Lin.*, with which species the Cobham plant agrees in the peduncles being cylindrical, and only slightly swollen immediately under the flowers, in the number of leaflets (8) of the involucre, and in the florets being much longer than the involucre. These, however, are almost the only particulars in which the Cobham plant agrees with *Trag. orientalis*; and having carefully examined fine and perfect specimens with which Mr. Pamplin has obligingly furnished us, we find them to agree so exactly with the description of *Trag. pratensis* in 'English Flora,' iii. 388, even to the curling of the tips of the long and gradually tapering leaves, that we have little doubt of the Cobham plant being that species in a state of great luxuriance, and with the florets longer than usual, which Sir J. E. Smith says is sometimes the case. Our opinion is strengthened by finding that in the Cob-

ham plant the ligules are streaked with brown on the under side, and that the anthers are brown—characters which Linnæus, in contrasting *Trag. orientalis* and *pratensis* in his ‘*Species Plantarum*,’ expressly states that the former species does not possess; * moreover, the marginal achenia in our plant are muricated with tubercles, *not* with scales, as those of *Trag. orientalis* are stated to be by Koch.†

We may take this opportunity of mentioning our belief that the common plant of our meadows and pastures is *Tragopogon minor* of *Fries*, Nov. 2nd ed. 291, in which the involucre is about twice as long as the florets, and the peduncles much swollen immediately beneath the flowers; at least this is the plant we have generally met with. Ray’s remark that in *Tragopogon* the rays of the calyx are longer than the flowers,‡ would seem to favour this opinion: Relhan also observes that the corolla is sometimes shorter than the calyx.§ We should be glad to receive communications on this and other doubtful points connected with the history of British plants.—*Ed.*]

ART. XIII.—*Notice of Plants gathered in the vicinity of Aberystwith, Cardiganshire.* By EDWIN LEES, Esq., F.L.S., &c.

THE vicinity of Aberystwith is composed entirely of the clay slate formation, and consequently there is little variety of soil; but it may perhaps be more interesting to the collecting botanist, to class the plants met with according to the habitats affected by them, rather than to give them in one catalogue. They may be more easily sought too by this plan, and a long detail of the exact locality is hereby avoided.

LITTORAL PLANTS.

<i>Glaucium luteum</i>	<i>Erigeron</i> acre, on Borth sands
<i>Cochlearia officinalis</i>	<i>Convolvulus Soldanella</i>
<i>Cakile maritima</i>	<i>Plantago maritima</i> , a curious proliferous variety
<i>Silene maritima</i> , profusely	<i>Erythræa littoralis</i> and <i>pulchella</i>
<i>Sagina maritima</i>	<i>Salsola Kali</i>
<i>Arenaria peploides</i> and <i>marina</i>	<i>Centunculus minimus</i> , abundant on the sandy heath between Maen Ynws and Aberdovey Ferry, at Borth, six miles North of Aberystwith
<i>Erodium maritimum</i> , below the castle rock	<i>Polygonum maritimum</i>
<i>Rosa rubella</i> , very sparingly	<i>Euphorbia paralias</i>
spinosissima, plentifully	
<i>Eryngium maritimum</i>	
<i>Aster Tripolium</i> , at Borth, north of Aberystwith	
<i>Chrysanthemum maritimum</i>	

* *Trag. orientalis*.....differt a *T. pratensi* flore majore, calyce ubi reflectitur quasi fracto, radio corollæ subtus luteo, nec fusco striato, antheris luteis, nec fuscis. Sp. Pl. 1109.

† Floribus duplo majoribus, et acheniis squamoso muricatis ab antecedente (*T. pratensi*) satis differt. Koch, ‘*Fl. German.*’ 423.

‡ *Tragopogon* insigni nota a reliquis papposis lactescentibus differt, quod calycis floris radii ipsius folia seu petala longitudine excedant. ‘*Synopsis*,’ 171.

§ Corolla calyce quandoque brevior. ‘*Fl. Cantab.*’ 315.

BOG PLANTS.

Most of these grow on Cars Gochno, an extensive morass six miles north of Aberystwith, at the mouth of the little river Leary, and well deserving examination.

<i>Drosera longifolia</i>	<i>Anagallis tenella</i>
<i>Hypericum elodes</i>	<i>Pedicularis palustris</i>
<i>Comarum palustre</i>	<i>Scutellaria minor</i>
<i>Vaccinium Oxycoccus</i>	<i>Myrica Gale</i>
<i>Andromeda polifolia</i>	<i>Narthecium ossifragum</i>
<i>Campanula hederacea.</i> This little plant beautifully adorns the bogs on Plinlimmon, by the course of the infant Severn.	<i>Rhynchospora alba</i> <i>Eriophorum vaginatum</i>

ROCK PLANTS.

<i>Corydalis claviculata</i>	deed was gathered by Mr. Forster at this very spot; and perhaps <i>S. glaucum</i> itself may not be very different.
<i>Arabis hirsuta</i>	<i>Crithmum maritimum</i> , very sparingly
<i>Viola lutea</i> , on the hills about the Devil's Bridge	<i>Ligustrum vulgare</i> , on the castle rock; and I have generally found this plant on the maritime rocks of South Wales.
<i>Cotyledon Umbilicus</i>	<i>Linaria repens</i> , on the slate-rocks of Constitution-hill, very luxuriant and beautiful.
<i>Sedum anglicum</i> , very abundant on the castle rock	<i>Origanum vulgare</i>
<i>Sedum Forsterianum.</i> The plant which I gathered on a rock at the foot of the Rheidol Fall in 1837, and which flowered in a pot in my garden in June, 1839, differs considerably from the figure in 'Eng. Bot.' 1802, and comes nearer <i>S. glaucum</i> , 2477, the petals being narrow and almost linear, the calyx deeply cut, its segments sharp-pointed, and all the leaves with acute points. The barren branches are elongated, with the leaves curved or patent. Nevertheless, I conclude it can only be a variety of <i>S. Forsterianum</i> , which in-	<i>Cistopteris fragilis</i> , on the Devil's Bridge and neighbouring walls, plentiful.
	<i>Aspidium Oreopteris</i> , on the descent to Pont Bren
	<i>Hymenophyllum Wilsoni</i> , rocks at Pont Bren
	<i>Lycopodium clavatum</i> , alpinum and Selago, all very abundant on Plinlimmon, twelve miles N.E. of Aberystwith.

MARSH PLANTS.

<i>Spergula nodosa</i>	<i>Utricularia minor</i>
<i>Œnanthe peucedanifolia</i>	<i>Callitriche autumnalis</i>
<i>crocata</i>	<i>Triglochin palustre</i>
<i>Lobelia Dortmanna</i> , Teivy Llyn, S.E. of Aberystwith	<i>maritimum</i>
<i>Samolus Valerandi</i>	<i>Juncus maritimus</i>

The above (*Lobelia* excepted) are found at Borth Marsh, six miles North of Aberystwith.

WOOD, MEADOW, AND ROAD-SIDE PLANTS.

*Hypericum dubium**Euonymus europæus**Lathyrus sylvestris**Rosa villosa**micrantha*

Rubus suberectus, abundant in the woods about the Devil's Bridge; and puzzling forms of this or *R. affinis*, occur in bushes in fields near the sea at Sarn Cynvelen, 2 miles N. of Aberystwith.

Spiræa salicifolia. On a wild common about midway between Aberystwith and

Cardigan, I observed a number of tall plants of this species, but it was very near a part recently enclosed, and therefore a half doubt arose whether they might not have been planted. But there was no garden or habitation near, and no soul about the desolate spot of whom to make the enquiry.

Sanguisorba officinalis, very fine on the ascent of the mountain to Llyn Teivy, near Strata Florida Abbey.

Antirrhinum Orontium

*South Cottage, Malvern Wells,
July 17, 1841.*

EDWIN LEES.

ART. XIV. — *Notes on Plants growing in the neighbourhood of Guildford, Surrey.* By J. S. MILL, Esq.

Impatiens fulva. At whatever period introduced, this plant is now so thoroughly naturalized, that it would be pedantry any longer to refuse it that place in the English Flora, which has been accorded on less strong grounds to many plants originally introduced from abroad. For many miles by the side of the Wey, both above and below Guildford, it is as abundant as the commonest river-side plants, the *Lythrum Salicaria* or *Epilobium hirsutum*; and my friend Mr. Henry Cole informs me that it is found in various places by the same river all the way to its junction with the Thames. It is equally abundant on the banks of the Tillingbourne, that beautiful tributary of the Wey; especially at Chilworth, where it grows in boundless profusion: and near Albury, where I saw it for the first time in 1822. The plant stated by Sir J. E. Smith to be growing near Guildford, under the name of *Impatiens Noli-me-tangere*, is doubtless no other than this plant. The *Noli-me-tangere*, which I have seen growing about Windermere, in the Pyrenees, and in Switzerland, is very distinct from this.

Geranium lucidum; in most of the lanes about Guildford.

Fumaria capreolata; near Losely, and by the roadside between Guildford and Merrow.

Fumaria parviflora; in corn-fields on the summit and southern declivity of the Hog's Back; and in lanes at its foot.

Valerianella dentata (or *Fedia dentata*); corn-fields on the chalk hills on both sides of Guildford, abundantly.

Isatis tinctoria; in great perfection in the chalk-pits close to the town, on the Shalford road; as noticed in 'The Phytologist,' p. 30.

Hippuris vulgaris; in one of the ponds in Clandon Park.

Bupleurum rotundifolium. This plant grew, last summer, in a corn-field on the brow of the hill by the path leading from Guildford to Martha's Chapel. The field having been sown this summer with a green crop, which was removed early, the plant cannot now be found.

Campanula hybrida; abundant in the lower part of the same field.

Corydalis claviculata. This plant formerly grew close to Martha's Chapel, but I have sought for it this year in vain.

Dipsacus pilosus; most abundant near Chilworth, especially in the hanging wood.

Androsæmum officinale; near Albury, but sparingly.

Saponaria officinalis; near Shere.

Stellaria glauca. This interesting and elegant plant grows in marshy meadows by the river Wey, near the foot of St. Catherine's Hill.

Menyanthes trifoliata; now (whatever may formerly have been the case) a rare plant in Surrey. It grows on Gomshall Common, in the vale of Albury; where I also once found a double variety of *Cardamine pratensis*.

Papaver hybridum; in corn-fields between Guildford and Martha's Chapel. *Papaver dubium* is as common in the neighbourhood as *P. Rhœas*.

Lepidium sativum; naturalized by the side of the Wey.

Nasturtium sylvestre and *Barbarea præcox*: not unfrequent by the side of the Wey.

Rhamnus catharticus and *Frangula*; the former not unfrequent on the downs, the latter abundant in a wood near Compton.

Orobanche major; at Martha's Chapel.

Listera Nidus-avis; in a heathy wood between Guildford and Martha's Chapel. With this exception I have not been able to find near Guildford any of the less common Orchideæ so numerous near Dorking.

Salvia verbenaca. St. Catherine's Hill; Merrow Church-yard; and various other places.

Cistopteris fragilis and *Asplenium Ruta-muraria*. These ferns grow in considerable abundance on a wall by the road-side at Albury, where I first found them in 1824, and again this summer.

Marchantia polymorpha; on the perpendicular face of the cutting on the road to Godalming, at the foot of St. Catherine's Hill. *Geranum lucidum* grows on an old wall on the opposite side of the road.

J. S. MILL.

ART. XV.—*Botanical Notes.* By GEORGE LUXFORD, A.L.S., F.B.S.E.

UNDER this title will occasionally be laid before the readers of 'The Phytologist,' any interesting particulars relating to British plants that may happen to fall under my observation, in the hope that such notices will, in doubtful cases, lead to further enquiry.

Silene inflata, Sm. A short time back while looking over the herbarium of Mr. Wm. Bennett, I found two specimens of a plant from the collection of one of his friends, ticketed "*Silene Otites*: Woolwich Marshes: June, 1836." These were specimens of a curious state of *Silene inflata*, somewhat similar to the female variety of that species stated by Linnæus to be frequent in the Upsal garden; but I have no recollection of having met with a record of the previous occurrence of anything similar to it in Britain. The stem and leaves of the Woolwich specimens are the same as those of the plant in its usual state; the panicle also is repeatedly dichotomous and spreading, but the flowers are crowded together into a compact head at the extremity of each of its branches. The flowers themselves have neither the inflated calyx nor the large white petals of the perfect plant, but in size and general appearance bear a strong resemblance to those of the fertile plant of *Silene Otites*. They consist of four or five membranaceous scales or bracteas, slightly streaked and reticulated with purple, and inclosing several follicular bodies, each of which terminates in a twisted, purple, style-like point. In one of the flowers which I examined there were ten of these bodies, the five central ones cohering and forming an ovarium with five styles, the outer five being free and detached. I could discover nothing resembling stamina.

I subjoin a description of the Upsal variety of *Silene inflata* (the *Cucubalus Behen* of Linnæus) from the 'Species Plantarum,' whereby the differences between that and our plant will at once be perceived. "A female variety is frequent in the Upsal garden. This is smaller than the perfect plant. The calyx is exactly ovate, not oblong-ovate, and more obscure: corolla smaller: stamina half the length of the corolla, terminating in a tubercle without anthers: styles 3—5, longer than the corolla, turned to one side: each plant is fertile."*

* *Cucubalus Behen*..... "Varietas Feminea in Horto upsaliense frequens. Hæc Hermaphroditio minor. Calyces exacte ovati, magis obscuri, nec oblongo-ovati. Corolla minor. Stamina corolla dimidio breviora terminata tuberculo absque antheris: Styli 3 s. 5, corolla longiores, declinati. Planta utraque fertilis."—'Sp. Pl.' 591.

The above description of the Woolwich plant is very imperfect; the specimens had apparently been dried by the application of heat and considerable pressure, so that immersion in boiling water did not restore them to a good state for examination. The present notice may however lead to the detection of this variety (or rather monstrosity) in other localities.

Monotropa Hypopitys. I have long wished that some able botanist would seriously set to work on this plant, in order to determine whether it be really a parasite or not. The question has been settled with regard to *Lathræa*; and there is no doubt that a series of observations conducted in the same candid spirit which characterises the investigations of Mr. Bowman, would in this case lead to equally satisfactory, though I suspect somewhat different results. From my earliest botanizing days I have felt much interested in the enquiry, and have neglected no opportunity of endeavouring to ascertain whether a connection does really exist between this plant and the roots of the trees among which it grows; but either from not being able to command the requisite time or necessary patience, my researches have hitherto led to nothing satisfactory. In the neighbourhood of Reigate the *Monotropa* grows under the beeches in the rather stiff clay capping the chalk hills. On taking up a tuft containing several individuals of *Monotropa* growing in a large lump of soil, I have generally found that however loose and friable the upper surface might be, the lower part was invariably hard and thoroughly permeated by the fibres of the beech-roots. It is almost impossible, in clearing away this part of the soil, to avoid breaking off the very brittle fibrous roots of the *Monotropa*; the fibres of the beech, being much tougher, may, with a little care, be extracted in considerable lengths. One would suppose, if the plant were really parasitical, that to these beech-fibres we should find attached at least some small portions of its roots; this I have not observed to be the case. Steeping the clay in water in order that it may be washed from the plants, appears rather to have the effect of rendering it harder: I once had a tuft in water for upwards of a week, but the steeping did no good.

I have generally found a number of young detached plants of *Monotropa* dispersed through the lump of earth: they vary in size from little, white, pea-like bodies to half an inch or upwards in height; and I should say are certainly not connected with the beech-roots. I am inclined to believe that a portion at least of the nourishment of this plant is derived from a layer of vegetable matter, consisting chiefly of the slowly decaying leaves of the beech, which are generally covered with a white byssoid fungus.

I shall be exceedingly glad to learn that some favourably situated botanist has been able to settle that long-debated point,—the parasitical or non-parasitical character of *Monotropa*.

GEO. LUXFORD.

ART. XVI.—*Notice of 'A History of British Forest Trees.'* By PRIDEAUX JOHN SELBY, F.R.S.E., F.L.S., Etc. London : John Van Voorst. Part 1. July, 1841.

THIS work is to appear in monthly numbers, and is printed uniformly with the series of British Quadrupeds, Fishes, Birds &c. The *first* number is now before us.

Although in announcing the *Phytologist* we have drawn no line between the botanical productions of Britain and the more showy plants of sunnier climes, yet we freely confess that we feel a strong bias in favour of everything indigenous; and the discovery of a moss or some rare flower in an unrecorded and unexpected habitat, gives us more pleasure than the importation of cargoes of the choicest exotics: the word "British" compensating abundantly for sobriety of colouring or humility of stature. Influenced by this feeling we take up Selby's '*British Forest Trees*' with the most perfect and entire good will, and it is with some feelings of compunction that we pen even a single line which may be taken for dispraise.

The number before us contains portraits of eight trees; the lime, the American lime, the sycamore, the Norway maple, the common maple, the horse-chesnut, the holly and the Robinia, commonly but erroneously called the acacia. Of these the maple and the holly are unquestionably British, the lime as cultivated and the sycamore have a doubtful claim, and the remaining four have no claim at all. This seems to us scarcely in accordance with the title. We do not complain that Mr. Selby has attempted any misrepresentation; on the contrary his work supplies abundant evidence of our assertion, that four only of the trees are reputed to be British. We submit therefore whether it would not be well to amend the title of the work by the introduction of the words "indigenous or introduced:" this would give the public a much better idea of the real object of Mr. Selby's undertaking.

The figures of the trees are beautifully cut, but have the demerit, if so it may be called, of being drawn from extraordinary specimens; thus, although we have no doubt that the figures are faithful portraits of certain trees that do exist, yet in exuberance of growth they so far

exceed their kith and kin, that we fail to recognise in them the forms of our old familiar friends. The detached figures of the leaf and florification are admirable: nothing can be better than the sprig of holly at p. 47; and the botanist will justly attach greater value to these details, than to the more showy effigies of the trees themselves.

The following specimens of the letter-press are from the descriptions of the sycamore and the common holly.

“Frequently as we hear the sycamore abused as not worth growing for the value of its timber, and devoid, as an ornamental tree, of beauty of outline and picturesque effect, we nevertheless agree with Sir T. Dick Lauder, that it is ‘certainly a noble tree.’ Vying in point of magnitude with the oak, the ash, and other trees of the first rank, it presents a grand unbroken mass of foliage, contrasting well, in appropriate situations, and when judiciously grouped, with trees of a lighter and more airy character, and affording, as Gilpin expresses it, ‘an impenetrable shade.’ Lauder well observes, ‘The spring tints of the sycamore are rich, tender, glowing, and harmonious; in summer its deep green hue accords well with its grand and massive form, and the brown and dingy reds of its autumnal tints harmonise well with the mixed grove to which they give a fine depth of tone.’ The colour of the bark is also agreeable to the eye, being of a fine ash grey, frequently broken into patches of different hues, by the peeling off, in old trees, of large flakes of the outer bark, in the manner of the plane.”—p. 15.

“In natural woods, and especially in the deep glens and rocky denes of our northern districts, however beautiful and diversified the scenery may be, it never fails to receive an additional life and charm wherever the holly is present to intermingle its glossy foliage with the various tints around it. Oft have we stood and lingered in our walks to watch and admire the bright and fleeting lights produced by our favourite evergreen, as moved by the gentle zephyr, its polished leaves have reflected in diamond-like coruscations, the rays of light as they penetrated the recesses in which it grew, at the same time that its rich dark green foliage, by force of contrast, gave an additional value to the paler tints of the mountain ash, the hazel, and various other shrubs which grew around it.”—p. 39.

ART. XVII.—*Varieties; Original and Select.*

11. *Value of Botanical Notes.* I am glad to see any fresh effort to extend botanical knowledge, and yours seems to be well calculated for this purpose. I hope that your solicitation for “the slightest piece of information” will be responded to, for these little affairs are sometimes productive of much pleasure and interest to succeeding botanists. I recollect an instance. A correspondent wrote to me for a specimen of *Aspidium fragile*, Swartz: I sought it in vain: but on turning to Withering I found mention of a station within two miles of my own house, where it had been found thirty years before by a lady who happened to have a temporary residence close to the spot. I went in search of it, and had the delight to find a single plant,—the only one I have ever discovered in the neighbourhood.—*Benjamin Maund; Bromsgrove, July 3, 1841.*

12. *Supposed effect of Chlorine on Blue Flowers.* As we are alluding to trifles, I will mention a circumstance which may lead to further enquiry. Near to the British

Alkali Works, in Worcestershire, I found a white variety of *Campanula patula*. This called my attention to the appearance of the species generally, and also to *Campanula rotundifolia*, both being abundant in the neighbourhood. I observed that the flowers of each species were in every instance much paler than I had been used to see them, and I have not the least doubt that the chlorine, which was then thrown off in great abundance from the alkali works, produced this effect. I am not supposing that the flowers, on expansion, were really bleached by a vitiated atmosphere; but I believe that the chlorine had an influence on the juices of the plants, and prevented the development of the usual colour of their flowers.—*Id.*

13. *Polypodium Dryopteris* and *Allosorus crispus* grow among rocky debris [on the Malvern Hills], a locality not mentioned in Mr. Newman's beautiful work on British Ferns, and thus proving that the geographical distribution of species can hardly be satisfactorily determined without the extensive aid of local botanists.—*Edwin Lees; South Cottage, Malvern Wells, July 12, 1841.*

14. *Asplenium viride*. While on the subject of ferns I will just mention a curious locality for the green spleenwort (*Asplenium viride*), proving at the same time the tenacity of existence exhibited by these mural insinulators. About fourteen years ago some plants gathered by the late Mr. T. B. Stretch, of Worcester, fell into my hands, and among them was a specimen of *Asplenium viride*, ticketed "Ham Bridge, Worcestershire." This is an old stone bridge over the river Teme, near Clifton, between Tenbury and Knightsford Bridge. Thinking this a curious habitat for this mountain fern, I took an early opportunity of examining the bridge, and did so for two or three successive years; but my search was vain, for the bridge had been recently repaired and whitewashed (*horribile dictu!*), and no trace of any fern or even plant could I find upon it. However, in 1836, happening to go that way again, I once more paused and leaned over the parapet of the bridge—scarcely believing my eyes, two specimens of the *Asplenium* were positively there and well fruited. One I gathered, and left the other as an "egg in the nest." That the fern had been almost obliterated, and its roots completely obscured and hindered from vegetating for some years by the villanous whitewash, appears I think very evident; but this fact seems to suggest that where a fern has once established itself, it may probably be again found after the lapse of years, though at intermediate times of examination apparently extinct.—*Id.*

15. *Dispersion of Seeds*. The modes by which the seeds of plants are transported about, are exceedingly various and well worthy of attention: and perhaps none are more so than those of Syngenesious plants, most of which have a downy egret, as the dandelion, thistle, groundsel, &c. I do not know a prettier sight than a dandelion-seed floating along beneath its feathery plume, on a gentle breeze: now erect, now lightly waving to one or the other side, yet still keeping its position, like the car of a miniature balloon; till at length it slowly descends, and fixes itself in some crevice of the earth, there to be nourished, far enough from its parent flower. Some seeds have attached to them a broad, thin blade (*samara*), as the ash, maple, &c., which forces them obliquely through the air, instead of perpendicularly: others are jerked to a distance by a peculiar mechanism in the seed-vessel: others are carried to distances in the stomachs of birds, their vegetative power increased, rather than destroyed, by the process of digestion. All show a power at work, to which the wisdom of man is foolishness. * * One of the most curious of our forest seeds is that of the bass-wood, [*Tilia americana*, *Linn.*] You may see one yonder slowly descending through the air: it whirls round horizontally with great rapidity, as it falls, as if on an axis or pivot.

Take it up and examine it; here is a long, ovate-lanceolate leaf (*bractea*), transversely bent in the middle: from the angle on the under side proceeds a slender stalk, at the end of which is fixed a round body like a pea, which looks, as it descends, as if it hung by a thread from the leaf-like wing: this contains the seed.—Gosse's '*Canadian Naturalist*.'

16. *Splitting of trees by the freezing of water.* Old trees, when cut down, are often found to have the heart-wood so separated from the sap-wood, as to fall apart when a log is split through the centre; and we find that the crevice or intermediate space has been occupied by a film of ice. This explains those loud reports which we heard just now, and which so often occur in the forest in frosty weather. Some water has lodged in the tree — perhaps in some maggot's or woodpecker's hole — which freezing, rends the wood by its irresistible force of expansion; into the rent so formed, the water percolates as soon as a thaw comes, and freezing again, extends the crevice downwards, each rent attended with these sudden and startling sounds.—*Id.*

17. *Arrow-poison plant.* Our path was over "hill and dale," mostly in a N.N.W. and N.W. direction. It became every moment wilder: we had to cross several mountain-streams, which flowed in deep beds, precipitating at their banks a ferruginous matter; underbush became scarce; it appeared as if Nature here delighted only in gigantic forms. Our Indians thought they had mistaken the track; but as we arrived at a stream which ran rapidly over the sloping ground, exhibiting granitic shelves, we observed that several paths united; and crossing the brook our guides stopped, and pointing to a ligneous twiner which wound itself snake-like from tree to tree, they called out "Urari," the name of the plant in the tongue of our guides. My wish was thus realized; and that plant which Baron de Humboldt was prevented from seeing, and which was one of the chief objects of Mr. Waterton's '*Wanderings*,' but without success, I now saw before me.—Schomburgk in '*Ann. and Mag. Nat. Hist.*' July, 1841.

18. *Preparation of the Indian arrow-poison.* It is only the bark of the woody parts and its alburnum which are considered to possess the poisonous principle in the highest degree. The stem of the plant is therefore cut into pieces about three feet in length, off which the bark is stripped, and after having been pounded it is steeped in water, for which purpose a new earthen vessel is used; here they allow it to remain for some time well covered, until the water is of a yellowish colour, when it is filtered through a funnel-shaped matappa lined with plantain-leaves. Several other plants have been meanwhile procured, and after their juice has been extracted in a similar manner, this extract is kept ready to be added to the former, at the moment it has been concentrated on a slow fire to the consistency of a syrup. The addition of that juice gives a darker colour to the Urari, which, from the time of its becoming concentrated, has the appearance of tar: it is now put into small calabashes, which are covered with leaves to prevent the poison from coming in immediate contact with the air. * * This is the unadorned account of the preparation of the Urari, and the method which is followed by the Macusis at and about Pirara, and the Wapisianas of the Canuku mountains where the plant grows. There appears to be no danger whatever in the preparation, and the vapours which are disengaged are entirely innocent; but the circumstance that it requires several days to watch the pot closely on the fire and to take off the scum &c., before it is properly concentrated, as well as the superstitious customs with which the poison-maker, for his own advantage, surrounds the preparation of it, prevent the Indian, with his natural indolence, from making it more than once or twice a year. *Id.*

18. *Effects of the poison.* As much as I had heard of this fatal poison, I nevertheless cannot abstain from noting the astonishment by which I was seized when I saw

it used for the first time. We travelled over the savannahs girt by the Pacaraima mountains; a deer was discovered browsing in the high grass before us. Lieutenant Haining, of the 65th regiment, my faithful travelling companion, was too far behind with his gun for us to await his coming up, and one of the Macusi Indians took a poisoned spike from his sarima and fixed it to his arrow. Cautiously he stole upon the unsuspecting deer, and shot the arrow into its neck; it made a jump in the air, fled with the speed of the wind over the savannahs, but it had scarcely run forty yards when it fell panting to the ground, and expired. * * I have seen the tapir, while swimming across the Rupununi, so slightly wounded that the spike had just penetrated through the thick skin; nevertheless it took effect, and the animal expired. Numerous are the birds of larger and smaller size which I have seen thus secured.—*Id.*

[The plant from the juices of which the Macusi and Wapisiana Indians prepare their fatal arrow-poison, is the *Strychnos toxifera*, Schomb., 'Hook. Ic. Pl.' t. 364 and 365: discovered by M. Schomburgk, in 1835. It is a native of South America, and appears only to have been found in the granitic mountains of Canuka or Conocon, in lat. 3° 10' N.—*Ed.*]

20. *New Botanical Work.* Miss Roberts, the well-known authoress of many popular works connected with Natural History, is preparing for publication 'The Dial of Flowers. We anticipate much pleasure from perusing it.—*Ed.*

ART. XVIII.—*Proceedings of Societies.*

ROYAL ASIATIC SOCIETY.

June 19.—The secretary read a botanical description of the *Lodoicea Sechellarum*, by M. Bernard. This production, which has long been known under the appellation of the double sea-cocoa-nut, grows only on two small islands of the Sechelles group, nearly under the equator. Many centuries before the place of its growth was known, portions of this nut had been frequently carried by the oceanic currents to the Maldive islands, &c.; and the most absurd fables were current respecting its origin and virtues. It was generally supposed to grow at the bottom of the sea; and the votaries of Vishnu devoutly believed that when that deity was churning the ocean, he broke off several of the branches from the tree, that they might float upon the surface, and be a specific for all the ills that afflict mankind. The *Lodoicea* attains a height of 80 or 90 feet, and is surmounted by a beautiful crown of winged and palmated leaves. The leaves open like a fan; they are of large size, often attaining a length of 20 feet with a breadth of 10 or 12. The fruit is generally double, sometimes triple and even quadruple, and with its enclosing drupe attains a length of 13 inches with a circumference of 3 feet; and sometimes weighs from 40 to 50 lbs. A remarkable circumstance connected with this tree, is the length of time necessary to mature its fruit, and the long duration of its bloom. It bears flowers and fruits of all ages at one time. It is to be regretted that this tree is not cultivated, and that a practice has prevailed of cutting it down in order to get at the fruit and tender leaves. The writer of the notice, in fact, expresses his fears that the species will be ere long entirely lost.

The uses of the double sea-cocoa-palm are numerous. When young the fruit is a refreshing article of food: when ripe it furnishes oil. Its germ, when developed, is a sweet dish. The hard shell is formed into vessels for carrying water, &c.; and the whole nut is used in India as a medicine. The wood is used for building purposes &c.: its leaves for thatching, and when platted they are made into hats, baskets, fans, and a number of tasteful works for which the ladies of the Sechelles are celebrated.—*Athenæum*, July 8, 1841.

BOTANICAL SOCIETY OF LONDON.

July 8th.—William White, Esq. in the Chair. The Rev. C. A. Johns, F.L.S., exhibited specimens of a remarkable variety of *Scolopendrium vulgare*, discovered on a garden wall at Merrefield, near Saltrum, Devon. About an inch above the root the rachis forks so as to bear two perfect fronds, the summits of which are repeatedly divided into ligulate obtuse segments; the whole plant not exceeding four inches in length.

Mr. J. also exhibited a probably new species of *Sphagnum*, discovered in May, 1841, at Hoe Lake, Tren-tishoe, Devon, floating in a pool formed by a mountain stream. The leaves, which are a quarter of an inch long, are elliptic-lanceolate, acute, and reticulated very differently from those of any other British species. Mr. Brewer exhibited living specimens of *Iris fetidissima*, *Epipactis palustris*, and other interesting plants from Reigate, Surrey. Dr. John Lhotsky read a paper "On Phytogenesis, or the Origin of Plants."—*G. E. D.*

THE PHYTOLOGIST.

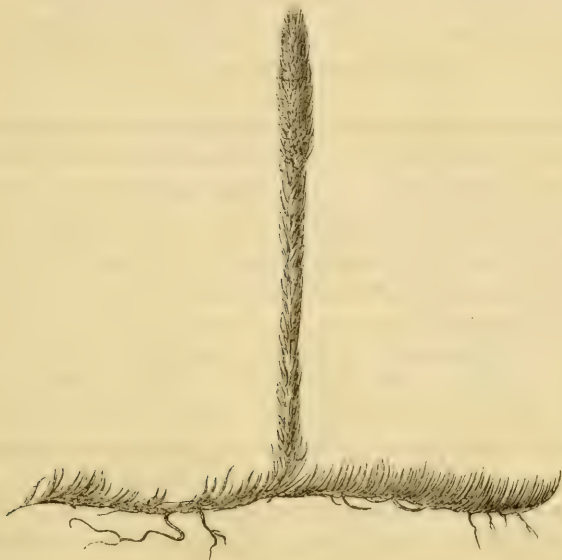
No. IV.

SEPTEMBER, MDCCCXLI.

PRICE 6D.

ART. XIX.—*A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN. (Continued from page 36).



THE MARSH CLUB-MOSS.

LYCOPODIUM INUNDATUM of Authors.

LOCALITIES.

- England. Cambridgeshire ; Gamlingay Heath, *Messrs. Isaac Brown, A. Wallis and T. Sansom*. Cumberland ; Wastewater, *Mr. S. P. Woodward*. Devonshire ; Trentishoe bog, near Linton, *Mr. Ward*. Kent ; near Bromley, *Mr. S. P. Woodward* ; Keston Heath, *Mr. W. Pamplin* : Ham Ponds, near Sandwich, *Mr. Ward*. Lancashire ; near Manchester, *Mr. T. Sansom*. Middlesex ; Hampstead and Bagshot Heaths, *Ray*. Norfolk ; not unfrequent on wet heaths ; Moushold Heath, Stratton Strawless, Horsfield, Felthorpe and Holt Laws, *Mr. S. P. Woodward*. Surrey ; near Esher, *Mr. S. P. Woodward* : Oxshot Common, *Mr. Cameron* : Leith Hill Common, *Mr. Sansom* : Woking Common, *Mr. Luxford* : Reigate Heath, 1841, *Mr. J. A. Brewer* : Wimbledon Common, Shirley Common, *Mr. W. Pamplin*. Sussex ; Tilgate Forest, *Mr. H. M. Holman*. Warwickshire ; Coleshill Heath, *Rev. W. T. Bree*. Yorkshire ; near Settle, *Mr. S. P. Woodward*.
- Scotland. Nairnshire, on moist heathy ground, near Cawdor ; *Drs. Balfour and Greville* : Cawdor Woods ; *Mr. W. A. Stables*.
- Wales and Ireland. Unrecorded.

THE Marsh Club-moss appears to occur, although not abundantly, on most of the heaths and commons in the south of England, particularly where turf has been pared from the surface. In the immediate neighbourhood of London many habitats have been recorded; those given above I have had opportunities of verifying. In the midland and northern counties it is less common; in Scotland and Wales it is of comparatively rare occurrence; and in Ireland it is altogether unknown. It is found on wet or turfy ground, generally preferring a sandy or gravelly soil: its non-appearance in Ireland appears unaccountable.

Our early botanists were not generally acquainted with this species. It is described and figured by Vaillant and Dillenius, but the latter author has given it a branched and luxuriant appearance which I have never seen it assume. Tragus and Gerarde do not mention the plant, and although Plukenet and Morison have been quoted as authorities, I much doubt the correctness of the references. Its medical virtues have not been recorded.

The marsh club-moss is an insignificant and by no means striking plant. In its foliage and solitary spike it more nearly resembles *Lycopodium clavatum* than any other British species; but the nearly circular capsule and other distinguishing characters separate it widely from that, and indeed from all the other indigenous Lycopodia.

The roots are stout; they do not penetrate the earth so deeply as those of either of the species previously described: the prostrate stem creeps close to the soil, and is occasionally, but rarely, branched, the branches still remaining prostrate; the stem appears to be of slow growth, and never increases in size in the same way as that of the species before described; between the points where it is attached by the roots, the stem sometimes assumes an arched appearance.

The growth of each year, with the exception of its extreme point (which remains firmly rooted to the ground), dies during the succeeding winter; the dead portion for some months adhering to the soil, and even after decay leaving a conspicuous black line on the surface. In the autumn each plant throws out an erect solitary spike, situated on a foot-stalk which usually rather exceeds the spike itself in length.

Every part of the plant is densely clothed with linear acute leaves; those on the prostrate stem are invariably curved upwards; on the footstalk they are rather more scattered, erect and without curvature. The leaves or bracts on the spike differ from the others in being broader at the base, and are not unfrequently furnished with a single tooth

on each side. The capsules are situated at the base of the bracts; they are nearly spherical, and of a pale yellowish green colour.

In my observations on the supposed uses of *Lycopodium clavatum* a ludicrous blunder occurs. I have surmised that Lightfoot, whose 'Flora Scotica' was published in 1777, borrowed an idea from Wahlberg, who wrote in 1826. The name of Mattegras is of old date, so that the reasoning of the passage is still sound.

EDWARD NEWMAN.

ART. XX.—*Additions to Luxford's 'Reigate Flora.'*

Communicated by H. M. HOLMAN, Esq.

18, St. Thomas's St. East, August 12, 1841.

SIR,

The following plants have been detected in the neighbourhood of Reigate, by various observers, since the publication of the 'Reigate Flora' in 1838. If you think the list possesses sufficient interest to be printed, it is quite at your service.

Yours, &c.

H. M. HOLMAN.

To the Editor of 'The Phytologist.'

- | | |
|--|--|
| <i>Hippuris vulgaris</i> . Plentiful in the mill-pond at Leatherhead. | <i>Avena pubescens</i> . Very abundant at the foot of Reigate Hill. |
| <i>Lemna trisulca</i> . Castle-moat. | <i>Dipsacus pilosus</i> . Right hand of the road from Wonham Mill to Betchworth; 1841. Norbury Park. |
| <i>Scirpus fluitans</i> . Pools on Earlswood Common. | <i>Centunculus minimus</i> . Abundant on Reigate Heath. |
| <i>Eriophorum vaginatum</i> . Leith Hill, plentiful. | <i>Potamogeton pectinatus</i> . Pond in a copse at the foot of Reigate Hill. |
| <i>Milium effusum</i> . Plentiful in a copse to the right of the foot-path leading from Rice Bridge to Gadbrook: lane leading from Reigate Heath to Colley Hill. | <i>Cynoglossum sylvaticum</i> . Hedges left of the road between the Burford Inn and the Running Horses, Mickleham; also plentiful in Norbury Park. |
| <i>Aira flexuosa</i> . Redstone Hill, near Mespilus germanica: on Reigate Heath, in Chart Lane, &c.; common. | <i>Hottonia palustris</i> . Ditches at Burstow. |
| <i>Poa nemoralis</i> . On both banks of the lane leading from Cockshot Hill to Gander's Hall. | <i>Campanula latifolia</i> . A considerable quantity in a copse on High Trees Farm. |
| <i>Triodia decumbens</i> . Redhill. | <i>Rhamnus catharticus</i> . Hedges at the foot of Reigate Hill and Colley Hill. |
| <i>Festuca bromoides</i> . About Redhill. | <i>Cuscuta Europæa</i> . Banks of the Mole between Mickleham and Leatherhead, on nettles and mallows. |
| <i>Bromus secalinus</i> . Corn-fields between Merstham and Coulsdon. | |

- Bupleurum rotundifolium*. Two specimens in a barley-field on the High Trees Farm, 1838: field near the Hermitage on Buckland Hill, 1841.
- Oenanthe fistulosa*. Plentiful in Merstham pools.
- Galanthus nivalis*. Extremely plentiful in a field near the farm-house at Whiggey: banks of the Mole at Brockham.
- Narcissus Pseudo-narcissus*. Meadow near Horley mill.
- *biflorus*. Meadow right hand of the London road beyond the tunnel; and at Flanchford.
- Lilium Martagon*. Copse between Mickleham and Headley.
- Ornithogalum nutans*. Plentiful on the bank right of the lane leading from Linkfield Street to Wray Common.
- Luzula Forsteri*. Wood by the fullers' earth pits at Nutfield.
- Triglochin palustre*. Nutfield Marsh.
- Daphne Laureola*. Nutfield: Merstham: and in a wood behind Juniper Hall, Mickleham.
- Polygonum Bistorta*. At Nutfield and Flanchford.
- Sedum reflexum*. By the side of the London road, at Kingswood.
- Pyrus Aucuparia*. Redstone Hill.
- Fragaria elatior*. Fridley Copse.
- Helleborus viridis*. A considerable quantity on Reigate Hill, near the east end of the hedge-row on the north side of the field opposite the Gatton Inn: also in Fridley Copse, near Mickleham.
- *fœtidus*. Foot of Mickleham Downs.
- Lathyrus sylvestris*. Abundant on the chalk hills, between Merstham and Coulsdon.
- Astragalus glycyphyllos*. Abundant on the chalk hills between Merstham and Coulsdon.
- Trifolium subterraneum*. Plentiful on Redhill; Wray Common; and Reigate Heath.
- *striatum*. Plentiful on the Park Hill; Wray Common; and in a field by Blackboro' Mill.
- Cnicus pratensis*. Bog between Pease-pottage gate and Starve-mouse plain, Tilgate Forest, Sussex.
- Petasites vulgaris*. Betchworth: and plentiful on the right hand side of the London Road, about 100 yards beyond the Feathers Inn, Merstham.
- Thrinicia hirta*. Earlswood Common.
- Typha angustifolia*. Pool at Merstham.
- Mercurialis annua*. By the ruins of Betchworth Castle.
- Euphorbia platyphylla*. Field near the Hermitage, on Buckland Hill.
- Aspidium angulare*. Plentiful in Chart Lane.
- Lycopodium Selago*. Leith Hill.
- Pilularia globulifera*. Below New Pond, on Earlswood Common.
- Phascum crispum*. Redstone Hill.
- *subulatum*.
- *curvicollum*. Bank by the side of the Brighton road, between Crawley and Handcross.
- Sphagnum obtusifolium*, *squarrosum*, and *acutifolium*. Bogs on Reigate Heath.
- Gymnostomum truncatum*. Banks about Redhill.
- *pyriforme*. Clover field at Meadhole.
- Polytrichum undulatum*. Banks, common.
- *piliferum*. Reigate Heath.
- *juniperinum*. Redhill and Reigate Heath.
- *commune*. Reigate Heath.
- *aloides*. Shady banks.
- *nanum*. Reigate Heath.
- Tortula muralis*. Walls, common.
- *ruralis*. Roofs of old buildings, and on walls.
- *subulata*. Moist banks, common.
- *ungiculata*.
- *fallax*. Common.
- Grimmia apocarpa*. Walls of the Vicarage garden.
- *pulvinata*. Walls, common.
- Weissia cirrata*. Old palings.

- Weissia curvirostra*. On old palings.
 ——— *controversa*. Banks, abundant.
Dicranum bryoides. Moist banks, frequent.
 ——— *taxifolium*. Side of a ditch on Wray Common; lane behind the park.
 ——— *glaucum*. Reigate Heath, abundant.
 ——— *flexuosum*. Lane west of the Park.
 ——— *scoparium* and *heteromallum*. Common.
Didymodon purpureum. Reigate Heath and Redhill.
Funaria hygrometrica. Reigate Heath, and on walls.
Orthotrichum anomalum and *affine*. On trunks of trees, common.
 ——— *striatum* and *Lyellii*. Gatton wood, on trees.
 ——— *crispum*. Beeches on Reigate Hill.
 ——— *pulchellum*. Rather plentiful on the beeches on Reigate Hill.
Neckera crispa. In the greatest profusion on the stumps of hawthorns on Buckland Hill; and amongst the juniper-bushes on Reigate Hill.
Anomodon viticulosus. Reigate Hill; and frequent on stumps of trees.
Daltonia heteromalla. Common on trunks of trees.
Fontinalis antipyretica. Very fine in a pool near the Church.
Bartramia pomiformis. Lane behind the Park; high bank at Buckland.
 ——— *fontana*. Reigate Heath, barren; in fruit at Redhill.
Hypnum complanatum. Trees, common.
 ——— *undulatum*. Stump of a tree in the lane west of the Park.
Hypnum serpens. Banks, frequent.
 ——— *Schreberi*. Wray Common and Reigate Hill.
 ——— *purum*. Common.
 ——— *sericeum*. Trees and walls, common.
 ——— *lutescens*. Reigate Hill.
 ——— *alopecurum*. Banks, frequent.
 ——— *dendroides*. Nutfield Marsh.
 ——— *curvatum*. Gatton woods, frequent.
 ——— *splendens*. Reigate Heath, &c.
 ——— *proliferum*. Banks, common.
 ——— *prælongum*. Common.
 ——— *abietinum*. Reigate Hill, among Neckera crispa and Hypnum lutescens.
 ——— *piliferum*. Banks.
 ——— *rutabulum*, *velutinum*, *confertum* and *striatum*. Common.
 ——— *cuspidatum*. Reigate Heath.
 ——— *triquetrum* & *squarrosus*. Common.
 ——— *palustre*. Redhill.
 ——— *aduncum*. In great profusion in bogs on Reigate Heath.
 ——— *cupressiforme*. Common.
 ——— *molluscum*. Reigate Hill.
Bryum palustre. Reigate Heath; rarely in fruit.
 ——— *pyriforme*. Sand-bank near Dorking.
 ——— *argenteum*. Walls and banks, frequent.
 ——— *roseum*. Lane west of the Park; and Reigate Heath.
 ——— *capillare* and *cæspititium*. Walls and roofs.
 ——— *ligulatum*. In fruit at Buckland, 1839 and 1840.
 ——— *hornum*. Banks, frequent.
 ——— *cuspidatum*. Banks, frequent, always barren.

Additional localities for some of the rarer plants of the Reigate Flora; the figures refer to the pages of that work in which the plants are recorded.

Iris fœtidissima, 5. Copse on right hand of the lane leading from Reigate Heath to Colley Hill.

Scirpus lacustris, 5. Pond at Frenches.

Arundo Phragmites, 10. Pond left of the lane leading from Reigate Heath to Colley Hill: pond in Gatton Park.

Lithospermum officinale, 16. Field left hand of the lane leading from Reigate Heath to Wonham Mill: copse on Brightam's Farm, Wray Common.

Anagallis cærulea, 17. High Trees Farm.

Hyoscyamus niger, 19. Redhill, abundant.

Myosurus minimus, 29. Cornfields at Flanchford and Santon.

Polygonum dumetorum, 35, 91. Hedge left hand of the lane leading from Redhill to Turner's Croft; plentiful in 1839.

Chrysosplenium alternifolium, 38. Bog near the Somers Arms, Redhill; and at Littleton.

Ajuga Chamæpitys, 50. Plentiful on Buckland Hill, 1838.

Lathræa squamaria, 54. Very abundant in Fridley Copse, near Mickleham.

Lathyrus Nissolia, 63. Field on Colley Farm.

Orchis Morio, 74. Pastures on High Trees Farm.

Epipactis purpurata, 77. Wood on the top of Colley Hill: and in Gatton Wood.

——— *palustris*, 77. Amongst the willows below Merstham Pools.

Lycopodium inundatum, 88. Reigate Heath, by the bog nearest the Dorking road.

ART. XXI. — *Descriptions of two new Orchidaceous Plants from Para.* By FREDERICK WESTCOTT, Esq., A.L.S., Honorary Secretary to the Birmingham Botanical and Horticultural Society.

THE two new plants described below are natives of Para, where they were collected by S. Dickinson, Esq. in the year 1839, and transmitted by him to George Barker, Esq. in whose extensive collection at Springfield, near Birmingham, they flowered during the present spring.

Nat. Order.—ORCHIDACEÆ. Tribe.—MALAXIDÆ, *Lindl.*

Genus.—PLEUROTHALLIS, *R. Br.*

Pleur. barbata. Foliis lanceolatis, ovatis, apiculatis: sepalis subæqualibus, patentibus, lateralibus reflexis, basi connatis, supremo subreflexo; petalis sepalis multò minoribus, subciliatis, acutis; labello integerrimo, linguæformi, medio incurvo, apice acuto, carnosio, recurvo, suprâ glabro, subtus barbato.

Plant about 3 inches high. Stem smooth, angular, with 2 entire sheaths. Leaves fleshy, smooth, keeled, the keel terminating below the apex and producing a point, the older leaves have their margin more or less recurved. Flowers minute, racemose, varying in number from two to many, as would appear from examining the old scapes. Sepals rather ovate-lanceolate, smooth, rather obtuse, the lateral ones combined from the base half way up, then free; colour purple, except at the base, and if examined with a glass of moderate magnifying power, they present a pretty papillose appearance. Petals much smaller than the sepals, rather ciliate, acute, or perhaps approaching to acuminate. Labellum entire and strongly bearded beneath, incurved in the middle; apex fleshy, acuminate, reflexed, and in colour similar to the sepals and petals. Column smooth, about half the length of the petals, tipped with purple at the back near the apex. Clinandrium slightly laciniate. Stigmatic cavity ovate. Pollen-masses 2, pear-shaped. Anther-case smooth, 1-celled.

The flowers are very small, but singularly pretty if examined with a magnifier of moderate power.

Tribe.—VANDEÆ, *Lindl.*

Genus.—NOTYLIA, *Lindl.*

Not. laxiflora. Labello unguiculato, ecalloso, cordiformi, acuminato: perianthiis subæqualibus: petalis subacuminatis, 2- vel 3-punctatis: sepalis lateralibus coalitis, apice emarginatis subrevolutis.

Pseudobulbs small, about 6 lines high, furrowed. Sheaths scarious, longer than the pseudobulbs. Leaves ovate-lanceolate, fleshy, apiculate, revolute, 2 inches long and about 1 inch broad. Scape 6 inches long, inflorescence spreading. Peduncles about 4 lines long. Bracts ovate, acuminate, about one fourth the length of the peduncle. Petals rather shorter than the sepals, acuminate, of a pale yellowish white colour, marked near the base with two or three orange-coloured spots. Sepals of a yellowish green colour, upper one acuminate, the lateral ones combined from the base to the apex, where there is a notch, apex slightly recurved. Labellum small, unguiculate, the base of the lamina is heart-shaped, and of a yellowish colour. Column straight, about the length of the labellum, and in colour similar to the petals. Ovary about one-third the length of the peduncle, furrowed.

Birmingham, April 16, 1841.

FRED. WESTCOTT.

ART. XXII.—*Analytical Notice of the 'Transactions of the Linnean Society of London,' vol. xviii. pt. 4. August, 1841.*

THE 18th volume of the Linnean Transactions is just completed by the publication of the 4th part. Ten of the papers out of the fourteen contained in this part are botanical; and of such of these as may be considered most interesting to the British botanist, we intend to give as full an analysis as our limits will allow.

ART. XXX.—*Observations on the Structure and Development of the Organs of Pilularia globulifera. In a Letter to R. H. SOLLY, Esq., F.R.S. and L.S. By WILLIAM VALENTINE, Esq., F.L.S.*

MR. Valentine, already well known by his papers 'On the development of the Theca, and on the sexes of Mosses,'* and 'On the existence of Stomata in Mosses,'† has in the article before us recorded the results of his investigations on the structure and economy of an interesting British plant, of rather unfrequent occurrence. We do not strictly observe the order adopted by the author in treating on the various parts of the subject, but however, like him, we begin with the sporules.

The involucre of *Pilularia globulifera* contains two kinds of bodies occupying distinct sacs. The first kind are found chiefly but not exclusively in the upper part of the involucre; they are round, not more

* 'Trans. Linn. Soc.' xvii. 465.

† Id. xviii. 239.

than the 460th of an inch (in diameter?) and about forty in each sac : these bodies have been called pollen by some botanists and anthers by others, but the author proves Dr. Lindley's conjecture that they are abortive sporules, to be perfectly correct. The second kind are of an oblong pyriform shape, slightly constricted in the middle, with a more or less plicate conical projection at one end ; these are far less numerous than the first kind, and occur singly in each sac ; they are about the 60th of an inch broad, and have the power of germinating, which the first kind do not appear to possess. The author considers these larger bodies to be "undoubted sporules;" each of them consists of three coats, and the interior is occupied by a grumous fluid and particles of matter of various sizes and mostly ovate figure. The conical projection of the sporule is a prolongation of the middle coat, and is perforated at the apex : the inner coat is not continued into the cone, but on the removal of that part may be seen closing the aperture, in the form of a transparent membrane marked with three lines radiating from the centre, which indicate a valvular structure.

The progress of development of these sporular bodies is minutely detailed, and illustrated by a number of beautifully executed figures.

"A transverse section of the involucrum, when about the size of a small pin's head, shows it to consist of four integuments containing a mass of very delicate, spongy, compressible, cellular tissue, subdivided into four equal triangular portions, by four lines radiating from the centre."—488.

In the centre of each of the four triangular portions is a cavity, into which projects a number of nipple-like processes attached to a common receptacle. As the involucrum advances the cavities increase in size by a gradual recession of the surrounding cellular tissue, caused by an inherent condensation, of which the four radiating lines are the result ; and at maturity this condensation "is so complete, that the whole of the spongy tissue is condensed into four dissepiments, dividing the cavity of the involucrum into four equal loculi." The nipple-like processes continue to increase in size, and on examination are found to be hollow sacs, each containing a quantity of grumous matter, and "about ten soft, rather opaque, pulpy bodies, which are evidently compounded of four closely connected parts, so placed on each other as to form a cone with a triangular base." Such of these bodies as occupy chiefly the upper portion of the involucrum,—

"Enlarge, become pellucid, and recede from each other, but continue to be attached to each other by four stalks as long as half their diameter, which meet in one centre. It is now evident that these four bodies or sporules are contained in a mother-cell, which most probably existed before, but on account of its close approximation

to the four united sporules could not be seen. On the surface of each of these sporules are three short lines, which radiate from the insertion of the stalk."—489.

After a time the mother-cell is ruptured, the sporules separate from each other at the centre where the stalks meet, so that each is at first furnished with a short tail, which soon disappears. These sporules at length become perfectly opaque and white, by the gradual deposition of matter on the outer surface, and then they contain a little grumous matter, having previously been quite empty. The mother-cell entirely disappears, but the author is "inclined to think that a portion of it becomes attached to the surface of each of the sporules, of which there are about forty in each sac." After arriving at this stage no further change appears to take place.

Up to the time of their becoming pellucid and receding from each other, the sporules in the lower part of the involucre are developed in precisely the same manner as those in the upper, but here the analogy ceases. At this period, instead of the mother-cell being broken up and disappearing while the sporules remain entire, the greater number of the sporules themselves are ruptured and the unchanged mother-cell continues to envelope them.

"The shrivelled remains of the ruptured sporules continue to be attached to each other by their stalks, and the mother-cell remains perfect; in short no further change takes place, for they may be found in this state in the same sac with the ripe sporules. The two or three unruptured sporules which are single in each union * * enlarge, each struggling for the mastery, and it is not long before one prevails, the smaller ones rupturing and passing into the same state as those first ruptured. The sole remaining sporule now enlarges rapidly, assumes a pyriform shape, and the mother-cell gradually recedes from it by a still more rapid enlargement, except around the narrow extremity to which the three ruptured sporules which form the union are attached, where the mother-cell has contracted an adhesion. It appears that this dilatation of the mother-cell is caused by a secretion of fluid between it and the sporule, for if the cell be punctured the fluid will escape, and the cell return by its elasticity to the same dimensions as the sporule."—p. 490.

This stage is marked by the disappearance of the three ruptured sporules, which till now had remained attached to the growing one: the author conjectures that they may escape by an aperture in the mother-cell, which is visible at a later period. A deposition of opaque matter on the mother-cell now takes place, and forms the outer coat of the sporule; and —

"When the outer coat is completely formed, the mother-cell or middle coat ceases to enlarge, whilst the inner sac or true sporule continues its growth until it is checked by coming in contact with the inner surface of the mother-cell, to which, in its mature state, it is firmly adherent. The sporule is at first perfectly pellucid and deficient of

all granular contents; it is not till after the addition of the outer coat that the grumous granular matter is secreted.”—491.

The germination of the sporules is minutely described by the author.

“The first external sign of germination is either the appearance of four cells projecting through the apex of the conical projection, or a gradual swelling of that part.

* * The enlarging cellular mass then distends the conical projection, unfolding the plicæ of that body, and at length appears externally with four of its cells projecting beyond the general mass, and compressed into a quadrangular form. * *

Soon after the exposure of the entire germ, which is effected by the reflection of the valves [of the internal membrane] and conical membrane over the side of the sporule, where they lie quite concealed by the germ, little fibrillæ or rootlets begin to shoot from one side. They are simply articulated tubes, or elongated cells applied end to end, with frequently a bulbous extremity; and each is produced from one of the cells of the germ.”—485.

Shortly after the appearance of these rootlets the cells of the germ become flatter and more intimately connected with each other; and at the same time that part of the germ which closes the cavity of the sporule becomes hollow, and afterwards points in two places. These points gradually lengthen, and on dissection each will be found to consist of a closed sheath, one containing the first leaf and the other a root: these two apparently distinct sheaths communicate with each other, and envelope nearly the whole of the germ. The young leaf, when rather longer than the sporule, bursts through its sheath, and the root protrudes before it is as long as the sporule.

“After the leaf has grown to be many times the length of the sporule, or about two lines long, another leaf grows from the germ close to the first, to which it is in all respects similar; and then a bud begins to be developed from some indefinite part of the germ, but like the leaves and root, from within the sheath, which is now frequently much lacerated. This bud is covered by a peculiar kind of jointed hairs, whose attachments are lateral, at a short distance from their bases, and which contain a few colourless granules. This bud sometimes appears after the first leaf, in which case there is no second primordial leaf formed; and is the rudimentary stem, the first growth from it being a leaf, which exhibits, although in a small degree, the first evidence of gyration, and shortly after a root, which is furnished with its own sheath. *

* The roots are all formed in sheaths, through the apices of which they ultimately burst, the sheath continuing to embrace the base of the root, whilst a distinct and far more delicate sheath closely embraces its point.”—487.

“This account of *Pilularia* shows that it is incorrect to say of *Acrogens* that ‘germination takes place at no fixed point, but on any part of the surface of the spores;’ for it is quite certain in this instance that germination invariably takes place at a fixed spot, which may be pointed out before germination has commenced. It is at that part of the sporule indicated by the three radiating lines which appear to have been produced by the pressure of the three other sporules that originally helped to constitute the quaternary union; and as the spores of all the other tribes appear, according to Mohl,

to be developed in similar unions, it is most probable that similar lines indicating a valvular dehiscence also exist on them. This is certainly the case in some mosses, for instance, in *Ædipodium*, and in *Isoëtes*, *Lycopodium*, and *Osmunda regalis*; and in those instances where such a structure is not visible, it is probably owing to a thickening of the membrane, or a deposition of opaque matter on its surface, as in *Pilularia*. In the mature sporules of *Pilularia* they can only be discovered by dissection, and in the abortive ones they cannot be discovered at all after the first stages of their growth; whilst, again, the sporules of *Jungermannia complanata* exhibit similar lines after they have been submitted to the action of sulphuric acid. After the protrusion of the germ, however, it does appear to be quite immaterial from what part of the germ the first leaves, root or stem shall arise.

"It is almost superfluous to point out, that these primordial leaves, if the sporules be considered as seeds, have no analogy, except in their use, with cotyledons, because true cotyledons pre-exist in the seed, whereas these are the product of germination. But according to the view of the nature of sporules which I have endeavoured to establish, *Pilularia* must be considered as nearly allied to monocotyledons in its germination. * * I shall conclude these observations by stating that I have not been able to detect any organs which, as in the mosses, can by any possibility be supposed to perform the office of impregnating the sporules."—492.

ART. XXXI. — *Supplementary Observations on the Development of the Theca, and on the Sexes of Mosses. In a Letter to R. H. SOLLY, Esq., F.R.S. and L.S. By WILLIAM VALENTINE, Esq., F.L.S.*

THE author commences his letter by observing that subsequent examination of mosses leads him to concur in Mohl's views with regard to the fourfold development of sporules in a mother-cell, a fact of which he had expressed some doubt in a note appended to his paper 'On the development of the Theca, and on the Sexes of Mosses,' in 'Trans. Lin. Soc.' xvii. 481. He says he now feels himself "bound to confirm the accuracy of Mohl's observation in this respect:" and then proceeds to give a detailed account of the structure of the theca, and of the development and tetrahedral union of the sporules, as observed by himself in *Ædipodium Griffithianum*, a moss found plentifully on Snowdon, and examined in a recent state.

From these observations it appears that like those of *Pilularia*, the four sporules of *Ædipodium* are piled on each other in the mother-cell, "so as to form a cone with a triangular base;" like them, also, the four are connected with each other, when young, by a "very minute stalk, situated at the junction of three radiating lines." The author has "observed several instances in which the mother-cell contained but one sporule, which was in all the cases round, and did not exhibit any signs of a stalk, or of radiating lines on its surface."

The following observations on the analogy subsisting between thecae and anthers, and on that between sporules and pollen, which the

author evidently considers to be essentially identical, are exceedingly interesting.

“In the first place, the sporules are formed in thecae which have a great resemblance to some anthers. They are in most instances surrounded by a perichætium, which is a collection of modified leaves analogous to the perianth. They are either sessile, or seated on a stalk or seta, which may be named the filament. In *Sphagnum* the theca is elevated on a pedicel or leafless prolongation of the axis, of which peculiarity the anther of *Euphorbia* is a parallel instance. The thecæ are one-celled, yet they have a columella, which may be likened to the connectivum; and although the connectivum usually divides the anther into two cells, *Callitriche* is an instance in which there is but one cell; and there are examples in which the cavity is spuriously divided into four cells, as in *Tetratheca*, which in this respect resembles the theca of *Polytrichum*; and in the fact of evacuating its contents by a single pore, resembles the general structure of thecæ. All thecæ are lined by a distinct membrane, and so nearly does this resemble the endothecium of an anther, that in *Jungermannia multifida* its tissue is fibrous. The remarkable manner of the development of sporules and pollen is a most convincing analogy; they are developed in unions of fours in the cavities of simple cellulules; in fact, they are secretions in the cellulules which occupy the interior of the theca or anther, and are the only instances on record within my knowledge, of organized secretions in the cavities of simple cellulules. Although the tetrahedral union of both sporules and pollen is almost always dissolved at an early period, yet in some instances, as in *Ædipodium* and *Erica Tetralix*, it remains at maturity. Again, neither sporules nor pollen ever have the slightest apparent organic connexion with the parent plant,—a most remarkable coincidence, and a fact which has never been insisted on as a distinguishing character between sporules and seeds.”—502.

The effects produced by the application of sulphuric acid to the sporules are next described; “the same phenomena occur as when it is applied to pollen.” The author in a foot-note recommends this acid as “a valuable agent in the analysis of the peristomes of mosses,” and thus concludes his valuable letter:—

“Lastly, to complete the analogy, the sporules of mosses and of some other tribes commence their germination by the emission of the internal lining membrane in the form of a tube, which is exactly analogous to the pollen-tubes. In the mosses these tubes increase by the addition of a series of fresh tubes at their extremities, and at length a bud containing the rudiments of stem, leaves and roots is formed, which may be considered analogous to the embryo or young bud in the seed of the more highly organized plants.”—506.

The beautifully engraved illustrations which accompany the paper, comprise figures of *Ædipodium Griffithianum*, both of the natural size and magnified, and highly magnified views of the sporules in various stages of development, of the theca, and other parts of that moss; and also figures exhibiting the effects of sulphuric acid on the sporules of *Gymnostomum truncatulum*, *Orthotrichum striatum*, and *Jungermannia complanata*.

(To be continued).

ART. XXIII.—*Varieties ; Original and Select.*

21. *Cnicus Forsteri* I saw growing by hundreds last month in a piece of marshy ground formerly part of Ditton Common ; at least it was the plant I previously found near Weybridge and sent to Sir W. Hooker. It was growing with various numbers of flowers from one up to four, each on a separate and generally a long stalk. On comparing it with the books both English and foreign, and especially with Decandolle's description of his *Cirsium anglicum* (our *Cnicus pratensis*), I have little doubt that it is merely a variety of that, and that *C. Forsteri*, as you suggested, has no existence as a species.—*J. S. Mill ; Kensington, July 13, 1841.*

22. *Note on British Lycopodia.* From what I read in "The Phytologist" I am led to infer that any notice of fresh localities of our British Lycopodia, (especially in the Midland Counties, where these plants are comparatively rare), may not be entirely without interest. Three out of our six native species I have formerly found on Coleshill Heath (especially near Coleshill Pool), Warwickshire ; viz. *Lycopodium Selago*, *clavatum* and *inundatum* ;—all however, seem now to have disappeared ; at least no one of the three have I been able to meet with at the above station for some years past. Many years ago, when quite a boy, and in company with my father, I remember to have seen a single plant of *Lyc. Selago* growing in the bog below the pool. This was the only specimen I ever saw, or heard of being found, in the neighbourhood ; and as we gathered it, thinking it a prize, I suppose we put a finishing stroke to its existence in that situation. *Lyc. clavatum* was met with in some abundance. People knowing nothing of Botany were struck with the beauty of the plant, and used to gather long strings of it, hanging them in festoons round their looking-glasses and picture-frames, to adorn their rooms. I have failed to meet with the plant in its old quarters for some years, and I attribute its non-appearance to the growth of young plantations, the trees of which have overshadowed the ground, and in great measure destroyed the vegetation beneath. For the non-appearance now-a-days of *Lyc. inundatum* I am at a loss to account, because the parts where it grew (the shores of Coleshill pool), remain much in the same state as formerly, and would seem to be peculiarly suitable to the growth of the plant, being always moist, and occasionally overflowed. But after repeated searches in the very spots where it used to grow plentifully, I have for some years past failed to find it. A like fate, I may add, (though the fact has nothing to do with Botany), seems to have befallen the beautiful little *Polyommatus Argus* in the above district. We used to take it in great abundance : indeed, as a boy, I was more familiar with this species than with the common *Pol. Alexis* ; but now we cannot find a single specimen. True it is Coleshill Heath has been greatly curtailed by inclosures and cultivation since the days I have alluded to ; still however, considerable tracts yet remain *in statu quo* : the dryer parts purpled over with the three common kinds of heath, the bogs a sheet of gold in their season with the blossoms of *Narthecium*, and abounding with *Oxycoccus*, *Comarum*, *Eriophorum*, *Meynantes*, &c., &c., but no *Polyommatus Argus*, no *Lycopodium inundatum*, so far as recent researches can discover.—*W. T. Bree ;* Allesley Rectory, August 12, 1841.*

23. *New British Narcissus ?* I have now for some years cultivated in the garden a very handsome daffodil, which was found wild by a friend of mine, near Tenby in Pembrokeshire, and is quite distinct from any other British *Narcissus* that I am acquainted with. The late Mr. Haworth, to whom I sent it in 1830, considered it new

* In a letter to E. Newman.

to Britain, and recorded it in the 'Philosophical Magazine' under the name of *Ajax lobularis*. It is a highly ornamental species, a free flowerer, and increases readily. I think it may fairly be considered a native plant, (unless, indeed, it should be held to have been introduced by the Romans), for it is not likely that it should have been the outcast of a garden, being, as I believe, so little, if at all, known in the gardens, till of late years distributed by me among various private friends and public institutions, to all of whom it appears to have been previously unknown. The plant comes true from seed; the seedlings which I have raised differing very slightly, if at all, from the parent.—*Id.*

24. *Lilium Martagon*. This plant occurs in tolerable plenty near the village of Sampford, in this county [Essex], on the road from Great Bardfield to Walden. This locality was pointed out to me last May, by my relative Mr. R. M. Smith of Great Bardfield, who has known of it for above twenty years. The spot is a high bank, sprinkled with low bushes, on the side of a lane leading from the village eastward to some unexplored part of the county. From the situation I cannot at all suppose that the plant can be an escape from any garden. When I visited the spot there were a considerable number of plants, chiefly growing on the outsides of the clumps of bushes, but sometimes quite out in the grass. I do not see any mention of this locality in Ray's list of the rare plants of Essex, in Camden's *Britannia*, edit. 1695.—*Edward Doubleday*; *Epping*, August 12, 1841.

25. *Lilium Martagon*. I think I never shall forget the extreme pleasure I experienced when, in 1826, I first saw this beautiful plant growing in a little coppice to the right of the lane leading from Mickleham to Headley, in Surrey. The coppice was overshadowed by oak trees of considerable size, and the underwood had been cut during the previous year, so that the tall racemes of the lily stood up nobly and conspicuously above the brushwood, and it would have been difficult for any passing observer not to have noticed them.—*Edward Newman*; August 13, 1841.

[At the end of June, 1840, in a delightful excursion which we believe some of the party will not soon forget, we had the gratification of seeing *Lilium Martagon* growing in the greatest profusion in the station last mentioned. In some parts of the coppice the plants were so crowded that the flowers produced a perfect blaze of the richest colour among the young trees.—*Ed.*]

26. *Note on British Orchidaceæ*. From the commencement of the Birmingham Garden we have cultivated, with tolerable success, such of the British Orchidaceæ as we could obtain, and have preserved some species for several years without being obliged to procure a fresh supply from their native places of growth. They are grown in pots placed with our alpine plants; and about six years ago I was agreeably surprised at seeing some self-sown seedlings in several of the pots with the alpine plants, some of them being very small, and evidently seedlings of that year, others were much stronger. Of plants so obtained we have flowered several fine specimens every season for the last three years; some of them were permitted to flower where they came up, others were transplanted singly into pots, and all flowered equally well. They mostly are to be found with such alpine plants as have leaves covering the pots in winter in a living state, so as to ward off a portion of the rain, or in pots where the plants have a mass of roots to answer the same purpose, by absorption of the superabundant moisture. The species which have flowered from self-sown plants are *Gymnadenia conopsea*, *Orchis maculata* and *O. latifolia*,—the latter species being most abundant. As far as I can ascertain they flower the third year after their appearance in a seedling state.—*David Cameron*; *Botanic Garden, Birmingham*, August 15, 1841.

27. *Lycopodium clavatum* grows freely with us in a peat bed in a shaded situation, and appears as manageable as many other plants. Those who intend to cultivate it should, upon obtaining plants from their native habitat on the moors, put them into light sandy peat, and place the pots in a shaded situation until well rooted, when they may be turned out, with the balls entire, into a favourable situation, where they will require little further care or attention, except putting a little peat over some of the running stems to encourage them to make fresh roots.—*Id.*

28. *Lycopodium Selago* may also be grown in the same way as *Lyc. clavatum*, but does better in pots kept in a cool frame, or under a hand-glass, during the winter at least; it is also a plant well adapted for growing in the house, in a glass jar or glass case. Slugs are very fond of this species, and when once they commence will soon devour the whole plant if not sought out and destroyed.—*Id.*

29. *Dianthus plumarius* and *Dia. Caryophyllus*. The *Dianthus plumarius* from Ludlow Castle and *D. Caryophyllus* from Rochester Castle, cultivated together, besides the very satisfactory specific distinction presented by the different division of the petals and the serratures on the margins of the leaves, &c., have a different period for flowering; the flowers of *D. plumarius* appearing in June, while *D. Caryophyllus* only commences flowering at the latter end of July, and is now, in the middle of August, in perfection; the first corresponds in time of flowering with the garden pink, while the latter agrees with that of the carnation.—*Id.*

30. *Cibotium Baromez*, J. Smith. This interesting fern, which produced one fertile frond in the autumn of 1839, and of which a description by Mr. Westcott was read before the Linnean Society, February 18, 1840, has one fertile frond upon it this season. By some means or other a mistake has crept into the report of Mr. Westcott's description of this fern in the 'Proceedings of the Linnean Society,' Feb. 18, 1840, which perhaps had better be corrected. The passage I allude to is the following.—“Mr. Westcott is however in possession of a specimen of a fern collected in Mexico by Mr. Ross, which closely resembles the plant of the gardens, and should they prove to be identical, all doubt will be removed as to the claims of the present plant to be regarded as the *Baromez* of Linnæus, which is a native of China.” The true state of the case is this. For want of a work containing the description of *Cibotium*, Mr. Westcott thought that in our fern he had detected a new genus; and he also found, among a lot of dried ferns from Mexico, a mutilated frond of a fern which would belong to the same genus, (this has since been tolerably well ascertained to be *Cibotium Scheidei*, *Chamisso*); and it was the *genus* he meant that had a wide range, extending from China to Mexico, but not the *species*, *C. Baromez*. Whether our plant really be the *Baromez* of Linnæus cannot be cleared up, as we are unable to trace out its native country; we however never had any reason for supposing it to be from America.—*Id.*

31. *Impatiens fulva*. From what I have heard of the circumstances under which *Impatiens fulva* occurs in the localities given in the last No. of the *Phytologist* (p. 40), I should hardly consider it entitled to a place in the British Flora. I have not visited the spot myself, but I learn from my friend Mr. Jenner, who is pretty well acquainted with the neighbourhood, that the plant is scarcely to be found on the banks of the stream above Albury. It is cultivated in the Albury gardens, whence the seeds are most probably carried down by the stream and deposited on its banks, where they vegetate, and the plant soon becomes established, its range being extended still lower in the same manner: it even occurs on the banks of the Thames, below the con-

fluence of the Wey. This *Impatiens* is also cultivated in Mr. Goulburn's gardens at Betchworth; and about a fortnight ago Mr. Henness and myself found plants of it growing on the banks of the Mole near Brockham, (below the gardens). I have no doubt that in a few years it will be carried down to Burford Bridge, and perhaps farther, and establish itself on the banks of the Mole as it has on the banks of the Wey near Albury.—*W. Hanson; Reigate, August 16, 1841.*

32. *Additional Guildford Stations.* Since the publication of the list of Guildford plants in the last number of 'The Phytologist,' *Fumaria claviculata* has been re-found in its old locality, Martha's Chapel, and likewise on the extensive common near Shalford, called Blackheath. *Epipactis latifolia* has been found at the Sheepleas, and *Cuscuta Europæa* in an osier holt by the river Wey, a short distance above Guildford, entwined round nettles, the *Spiræa Ulmaria*, and the osiers themselves.—*J. S. Mill; Kensington, August 24, 1841.*

33. *Seeds of Aponogeton.* I write for the purpose of describing to you a rather singular phenomenon which I observed yesterday while committing to the water some seeds of the *Aponogeton distachyon*, and which you will probably have it in your power to notice. On their touching the surface, some of the seeds instantly began to move in starts and whirls, and had every appearance of living insects. On close observation I found that a considerable force (how produced is a mystery) was exerted to throw off what remained, after I had rubbed them, of the pithy matter from the pod which still adhered to them. As soon as they had rid themselves of this they sank. This is one of the most curious things I have ever seen.—*G. S. M. in Gardeners' Chronicle, August 7, 1841.*

ART. XXIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 6.—D. Cooper, Esq., in the chair. Various donations to the Library, Herbarium and Museum, were announced. The Rev. George Munford exhibited specimens of *Aspidium cristatum*, collected by him at Bawsey Heath, near Lynn, Norfolk. Dr. John Lhotsky presented some interesting specimens of Australian woods. The following Papers were read:—"On the Botany of Western Norfolk," by The Rev. G. Munford. The geography of plants is of much interest to the botanist, and every attempt to promote the knowledge of this branch of the science is worthy of observation. It is now universally admitted that the geological character of every district exercises very great influence over its vegetation. By a reference to Woodward's Geological Map of Norfolk, published in 1833, it will be seen that proceeding eastward from Lynn, which is situated on the alluvium, we meet with a narrow strip of the Kimmeridge clay and oolite that runs in a direction north and south nearly the entire length of the district. This is followed by a much wider portion of the Carstone, running in the same direction; and parallel with this lies about the same quantity of chalk marl. The indentation of the eastern side of the district extends into the hard and medial chalk, but embraces only a small portion of the latter, towards the north. The Paper concluded with a very copious list of habitats. "On the differential characters of *Dianthus Caryophyllus* and *Dianthus plumarius*," by Mr. T. Sansom. "Descriptions of New *Algae*," by Mr. Herring of Stuttgart," collected by Dr. Ferdinand Krauss during his travels, at Natal, South Africa. The paper was accompanied by a series of the specimens described. "On the supposed luminosity of *Schistostega pennata*," by The Rev. C. A. Johns, F.L.S. The author concludes that the plant is not itself phosphorescent, and that whatever light was reflected came not from the globular cells of the plant, but from the globules of fluid resting upon it. A similar fact was also observed in two species of *Jungermannia*. It appears however to be confined to those Cryptogamic plants with reticulated leaves. Mr. S. P. Woodward exhibited two rhizomas of *Aspidium Filix-mas*; one showing the spiral arrangement of the rachides, and on the other (and on the little pieces accompanying it) buds were developed. Near the bases of some of the rachides which appear in some instances, Mr. W. had seen to produce fronds yearly, till they became rhizomas in their turn, an inch or two long. This mode of development is common in Foreign genera, but Mr. W. was not aware of its having been mentioned as occurring in any of the British ferns.—*G. E. D.*

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ART. XXV.—*A History of the British Lycopodia, and allied Genera.*
By EDWARD NEWMAN. (Continued from page 51).



THE PRICKLY CLUB-MOSS.

LYCOPodium SELAGINOIDES of Authors.

LOCALITIES.

- England. Cumberland, Durham, Yorkshire, Lancashire and Westmoreland, in numerous localities; *Dr. Balfour, Mr. Simpson, Miss Beever* and others. Derbyshire; Kinder Scout, *Mr. O. Sims, (T. & D).*
- Wales. Caernarvonshire; Snowdon, Glyder Vawr, &c., *Mr. Janson.* Merionethshire; Cader Idris. Montgomeryshire; Plinlymmon.
- Scotland. Falls of the Clyde and shores of Loch Long, *Mr. Kippist.* Loch Brandy, Auchtermore, Sidlaw Hills, Ben-na-Bourde, Braemar, near Brechin, Clova, Ochils, near Dollar, and near Killin; *Drs. Greville and Balfour, Mr. Campbell, Mr. Graham and Mr. W. Gardiner, jun.*
- Ireland. Sandy ravines near the sea; counties Donegal, Londonderry, Dublin, Kerry, Wicklow, &c.; *Messrs. Mackay and Moore.* Near Belfast, *Mr. Woods.*

THIS species, which, without much reason, has obtained the name of the Prickly Club-Moss, is widely distributed over the hilly districts of the North of England, Wales, Scotland and Ireland. I have found it in every part of the Snowdon range that I have visited; also on Cader Idris, in the Western Highlands of Scotland, and on Errigal and other elevations in the County Donegal: and my correspondents have kindly supplied me with such a host of habitats, that I am compelled to limit the number given, on account of the space which the whole would occupy. It delights in the vicinity of those little rills so common in all our hilly counties, and whose course is so often marked by a sinuous line of vivid green, delighting the heart of the botanist, and leading him on from crag to crag, regardless of the crumbling debris and detached masses of stone which in such spots too often give way beneath his tread, and leap with awful bounds down the hill-side, till they find a new resting-place in the abyss below. On such localities has this interesting little plant fixed for its home, and here it may ever be found, the companion of saxifrages and the rarer ferns.

Lycopodium Selaginoides was well known to Ray, who considered it generically distinct from all the other British *Lycopodia*,* in which Dillenius appears to agree with him.† The figure ‡ by Dillenius is not inaccurate, but wants that elegance which is so characteristic of the majority of his figures: the other figures of our earlier botanists convey little or no idea of the characters of the plant.

The roots are extremely slender, thread-like and fragile; they take but a slight hold on the crumbling soil in which this species is usually found.

The stem is procumbent, very slender, weak, repeatedly branched, the branches short and somewhat sinuous: the seed-bearing spikes are thrown up at intervals, generally two or three on each plant; they are subclavate and considerably thicker than the prostrate stem.

The entire plant is clothed with lanceolate leaves, which are serrated and almost jagged at their edges; those on the procumbent slender portions of the stem are shorter, narrower and somewhat scattered, while those on the spike, more properly termed bracts, are every way larger and much broader at the base.

The thecæ are sessile at the base of the bracts, pale yellow and tolerably round; the upper ones contain the usual minute pollen-like particles which have already been spoken of as the seeds of *Lycopodium clavatum*, used under the name of '*plawn*' for the production

* Synopsis, 106.

† Hist. Musc. 460.

‡ Id. tab. 68.

of flashes of light ; the lower ones contain larger grains, equal in size to the seed of many phænogamous plants. This double mode of fructification has excited the admiration of botanists from the earliest period, and given rise to a variety of conjectures ; some have contended that both the large and small grains are productive seeds, others that the smaller bodies are true seeds, the large ones gemmæ or buds ; others that the smaller are abortive and the larger productive seeds ; and others again that the larger ones only are seed, the smaller ones being grains of pollen.

Wahlenberg* has given a very clear and accurate description of this twofold fructification. He observes that the capsules containing the graniform seeds are subquadrilocular, in reality bivalve, but sometimes dehiscing in four directions ; they occupy the lower portion of the spike, and are larger and more protuberant than those above. The seeds are always four in number, and are so squeezed and pressed together that three triangular areas are produced at the base of each ; in this particular they so much resemble the seeds of *Isoetes lacustris*, that, agreeing as the plants do in so many other respects, it is hardly possible to doubt their being closely related. The seeds are nearly as large as those of the poppy, and invariably fall from the capsule entire and are scattered upon the earth, a circumstance quite conclusive against their being anthers, as suggested by Hedwig. Capsules filled with the powdery seed common to the other *Lycopodia* and the bivalved ferns, occur in the axils of the upper bracts ; this powder consists of somewhat hirsute granules, four of which are combined in a tetrahedron, exactly like the seeds in the lower capsules, exhibiting a very obvious analogy between the two kinds of seed, and leaving no doubt of their having the same origin. If therefore the powder emitted from the capsules of *Botrychium Lunaria* be true seed, it follows that the powder produced by the capsules of *Lycopodium Selaginoides* is seed also. It cannot be male pollen, its appearance being precisely synchronous with that of the mature seeds. The spike itself is annual, decaying immediately after it has fruited in July or the beginning of August, and the next year a new spike springs from some other part of the prostrate stem, on no part of which can a trace of future capsules be found. From these circumstances it seems probable that the only difference between the granules is that of size, each being to be regarded as true seed ; a somewhat analogous discrepancy occurs in the varied form of the seeds of spinach. EDWARD NEWMAN.

(To be continued).

* *Flora Lapponica*, 292.

ART. XXVI. — *Localities of some of the rarer Plants found in the vicinity of Bristol.* By THOS. B. FLOWER, Esq., F.L.S.

FEW places perhaps present a more fruitful field for botanical research than the vicinity of Bristol; and thinking a notice of some of the more interesting plants may be acceptable, I have drawn up the following list of such as I have had the pleasure of detecting during numerous botanical excursions in that neighbourhood.

Ranunculus parviflorus. Sparingly in the lane leading to Baptist Mills; and on St. Vincent's Rocks.

———— *circinatus.* Frequent in many places about Bristol and Stapleton.

Helleborus viridis. This plant is by no means frequent in the neighbourhood. I have found it sparingly in the Roman encampment in Leigh woods.

———— *fætidus.* Woods near Stoke, and in woods between Braston and Backwell.

Aquilegia vulgaris. On the Down near Cook's Folly, also in Leigh woods.

Glaucium luteum. Frequent in many places about Portishead.

Fumaria capreolata. Stapleton and Crew's Hole in plenty.

Barbarea præcox. About Long Ashton, Bourton and Backwell.

Arabis stricta. The numerous stations given for this rare plant have been nearly destroyed within the last two or three years; rewards having been offered for it by an individual, in order to render it scarce.

Cardamine impatiens. Frequent in many places about Stapleton Mills.

Glyce maritima. On rocks about Clevedon, but by no means common.

Hutchinsia petraea. St. Vincent's Rocks in plenty, and also at Choram's Chair, near Blaize Castle.

Hesperis matronalis. Long Ashton, but by no means frequent.

Lepidium rudemale. St. Vincent's Rocks; and plentiful in many places about Bristol.

Diploxys tenuifolia. About Horfield and St. Philip's, sparingly.

———— *muralis.* Frequent about St. Vincent's Rocks, and in many places about Bristol.

Cerastium tetrandrum. Frequent on the Downs.

Saponaria officinalis. Frequent about Crew's Hole and Hanham.

Androsænum officinale. In the woods under Cook's Folly, and Leigh woods, sparingly.

Hypericum montanum. St. Vincent's Rocks.

———— *dubium.* St. Vincent's Rocks and Leigh woods.

———— *pulchrum.* On the Downs near Clifton turnpike, in plenty.

Geranium sanguineum. Plentiful on St. Vincent's Rocks and in Leigh woods.

Erodium moschatum. St. Vincent's Rocks; also about Peupole Point in plenty.

———— *maritimum.* Leigh down, also at Peupole Point.

Montia fontana. Brandon Hill near Bristol, and also at Stapleton.

Sedum Telephium. St. Vincent's Rocks.

———— *dasyphyllum.* On walls about Belle Vue, Clifton; and also at Bedminster.

———— *album.* "About Frenchay," Mr. Rootsey.

———— *rupestre.* St. Vincent's Rocks, but no doubt introduced originally.

Ulex nanus. In plenty on the downs. This is the plant observed by some of the mem^{rs}

bers of the British Association during their meeting in this city, and suspected by them to be *Ulex provincialis*, which is a small, erect, glabrous, much-branched plant, and, as I have been informed, quite distinct from the present species.

Lathyrus Aphaca. Corn-fields near Westbury, in plenty; and at Bedminster.

—— *Nissolia*. In great plenty below Shirehampton, in the marshes. "In the lane leading to St. Anne's wood," Mr. Rootsey.

—— *sylvestris*. In plenty in the wood by the side of the Avon, near Shirehampton.

Vicia bithynica. Plentiful in the last locality.

Hippocrepis comosa. In the road leading to the Giant's Hole on St. Vincent's Rocks, and behind the old hot-well house.

Trifolium subterraneum. In plenty on Brandon Hill near Bristol.

—— *medium*. In the woods below Cook's Folly.

—— *scabrum*. St. Vincent's Rocks.

—— *maritimum*. In the large meadow below Cook's Folly, in plenty.

—— *fragiferum*. By the side of the river Avon in many places; also in the meadows below Shirehampton in profusion.

—— *resupinatum*. Meadows below Shirehampton, Mr. Drummond. This plant is, I fear, entirely lost by drainage and cultivation. In the summer of 1838 I was unable to detect it; and again in July, 1839, when in company with C. C. Babington, Esq.

Lotus tenuis.

Medicago maculata. By the side of the Avon near Cook's Folly; also near Kingroad.

Ornithopus perpusillus. Brandon Hill, plentifully.

Cerasus Padus. St. Anne's Wood.

Potentilla verna. St. Vincent's Rocks, plentifully.

Pyrus pinnatifida. Leigh woods.

—— *Aria* and *torminalis*. St. Vincent's Rocks.

Geum rivale. Near Nailsea in plenty.

Epilobium roseum. About Crew's Hole and Hanham, sparingly.

Ēnanthe fistulosa. Ditches below Shirehampton, in the lane leading to Kingroad.

—— *pimpinelloides*. By the river side under Cook's Folly.

Bupleurum tenuissimum. By the river Avon near Cook's Folly, and at Sea Mills.

Trinia glaberrima. St. Vincent's Rocks, also on the rocks near Cook's Folly.

Petroselinum segetum. Sea Mills.

Smyrniūm Olusatrum. St. Vincent's Rocks.

Galium tricorne. Corn-fields near Horfield.

Rubia peregrina. Frequent in this neighbourhood, especially about St. Vincent's Rocks.

Dipsacus pilosus. Leigh woods.

Sambucus Ebulus. Near Sea Mills.

Inula Helenium. Portishead.

Artemisia maritima. Frequent about Kingroad.

Achillæa Ptarmica. Bedminster, sparingly.

Bidens cernua. Stapleton Mills, in company with *B. tripartita*; also at Hanham.

Orchis pyramidalis. Frequent about Cook's Folly woods.

Ophrys muscifera. Sparingly in Leigh woods. The station given for it in the 'New Botanist's Guide' has long since been destroyed.

—— *apifera*. In the greatest abundance about the rock house near Cook's Folly.

Neottia Nidus-avis. Leigh woods.

- Neottia spiralis*. On the down opposite the Zoological Gardens, in plenty.
- Epipactis latifolia*. Leigh woods, and St. Anne's wood, near Brislington.
- Habenaria chlorantha*. Frequent in Leigh woods, also in the woods below Cook's Folly. I am not aware that *H. bifolia* has been found in this neighbourhood.
- Galanthus nivalis*, Sea Mills; also near St. Anne's wood.
- Convallaria Polygonatum*. Leigh woods, in company with *C. majalis*.
- Fritillaria Meleagris*. In meadows at Bitton, but seldom flowering.
- Asparagus officinalis*. Opposite Cook's Folly, on the Leigh wood side of the river.
- Myosotis collina*. Frequent on the downs.
- *cæspitosa*. Watery places near Kingroad.
- Gentiana Amarella*. On the Leigh wood side of the river Avon.
- Glaux maritima*. Frequent between the hot wells and Shirehampton, on both sides of the river.
- Veronica hybrida*. St. Vincent's Rocks in plenty.
- *montana*. Frequent in St. Anne's wood near Brislington.
- *Buxbaumii*. In cultivated places about Bristol, but sparingly.
- Orobanche major*. In the woods below Cook's Folly.
- Lathræa squamaria*. Leigh woods, but sparingly.
- Lamium maculatum*. Naturalized at the back of the garden wall at Redland Court.
- Quercus sessiliflora*. Leigh woods.
- Hydrocharis Morsus-ranæ*. Plentiful in the ditches at Kingroad.
- Allium* ———? Sparingly by the side of the river Avon near Sea Mills.
- Gagea lutea*. St. Anne's wood, sparingly.
- Ornithogalum pyrenaicum*. St. Anne's wood; also about Hanham, by the river side.
- Butomus umbellatus*. Crew's hole.
- Carex digitata*. Leigh woods, sparingly.
- *clandestina*. St. Vincent's Rocks; also on the rocks on the Leigh side of the river.
- Rotböllia incurvata*. Frequent by the side of the Avon under Cook's Folly; also at Sea Mills.
- Hordeum maritimum*. Frequent about Kingroad.
- Poa maritima, procumbens and distans*. Frequent about Rownham Ferry.
- Bromus diandrus*. Plentiful in many places between the hot wells and Sea Mills.
- *secalinus*. Below Cook's Folly.
- Grammitis Ceterach*. On old walls in the neighbourhood.
- Blechnum boreale*. Frequent in Leigh woods.
- Polypodium Dryopteris*. Leigh woods, sparingly.
- Cystopteris fragilis*. Frequent about Dundry.
- Aspidium aculeatum*. Leigh woods; also at St. Anne's wood and at Hanham.
- *lobatum*. Leigh woods, and woods about Shirehampton.
- *Oreopteris*. Sparingly in Leigh woods.
- *dilatatum*. Leigh woods, Shirehampton and Hanham.
- Asplenium marinum*. Portishead and Clevedon.
- *Adiantum-nigrum*. Frequent on the walls in the neighbourhood.
- *Filix-femina*. Leigh woods.
- Ophioglossum vulgatum*. Leigh woods.

ART. XXVII.—*Analytical Notice of the ‘Transactions of the Linnean Society of London,’ vol. xviii. pt. 4. August, 1841.*

(Continued from p. 60).

ART. XXXII.—*Notice of a Plant which produces perfect Seeds without any apparent Action of Pollen.* By MR. JOHN SMITH, A.L.S.

THIS curious and interesting member of the Euphorbiaceæ, to which Mr. Smith has assigned the name of *Cælebogyne ilicifolia*, is a native of Moreton Bay, on the east coast of New Holland, whence three plants were sent to the Royal Botanic Garden at Kew, in 1829, by Mr. Allan Cunningham, who was unable to determine the natural order to which it belonged, not having seen either flowers or fruit. Mr. Brown also “collected specimens of this plant, but equally without fructification, at Keppel Bay, on the same coast, in 1802.” Under cultivation the plants retain their *scrubby* habit, and have much the appearance of dwarf holly-bushes.

“Shortly after their introduction the plants produced female flowers, an examination of which proved the genus to be Euphorbiaceous, and allied to *Sapium*: but although I have watched them carefully from year to year, I have been unsuccessful in detecting anything like male flowers or pollen bearing organs; and I should naturally have passed them over as diœcious, and considered the three introduced individuals as females, had not my attention been particularly directed to them in consequence of each of them producing fruit and perfect seeds, from which I succeeded in raising young plants. This, too, was not the result of one year, but of several successive years’ sowing: the plant now exhibited to the Society was raised last year, and the similarity of the offspring to the parent would alone lead me to conclude that it is not the result of cross-fecundation. The circumstances connected with the situation of the plant in the garden, and the absence of allied male plants, as also the peculiarity of the natural order to which it belongs, which do not readily hybridize, led me to believe that no foreign pollen had fecundated the ovarium; and on watching the progress of the stigma all doubts were removed. * * I have already said that the stigma consists of three connate lobes, which are more or less notched; at first the lobes are depressed on the ovarium, but as the ovarium swells they lose their reddish colour and become inclined upwards, retaining their succulent and healthy appearance till dried up by the ripening of the fruit: the surface has a granular appearance, derived from minute papillæ, and showing no signs of having been acted on by pollen. Spiral vessels occur in the thick part of the base of the stigma, and are doubtless connected with the vascular tissue of the ovarium. I have seen nothing like pollen-tubes. The stigmatic surface remaining so long unchanged affords a strong proof of its not having been acted upon by pollen, it being well known that the stigma of many plants remains for a long time unaltered, but soon after the application of pollen a change takes place, as is readily seen in *Orchideæ*.

“On considering the circumstances above noticed, and in particular the absence of

male flowers of the plant itself or of others related to it, and the fact of the stigma remaining so long unchanged, and not exhibiting the symptoms usually seen in stigmas after having been acted upon by pollen, I can arrive,—especially after the length of time during which I have watched it,—at no other conclusion than that pollen is not essential to the perfecting its seeds; but if an external agent be necessary, and really act upon the stigma, I am unable to say what that agent is or how it acts. I might mention a view which I at one time entertained, namely, that the viscid fluid which issues from the glands situated below the ovarium might produce some effect by exciting the action of the pistillum; and this view received some support from finding the young stigma often smeared with the fluid. That there is some specific action on the ovula I think there can be no doubt; for, as in most other plants, some of the ovula are frequently abortive.

“My object being merely to state the facts observed respecting this plant, without the intention of advancing any opinion on the various theories of vegetable impregnation, I shall conclude by merely observing, that the absence of pollen in this instance is irreconcilable with the theory that every grain of pollen furnishes a germ, and that the ovulum is merely a matrix to receive and nourish it till it becomes a perfect seed.”

(To be continued).

ART. XXVIII. — *Notice of ‘A History of British Forest Trees, Indigenous and Introduced.’* By PRIDEAUX JOHN SELBY, F.L.S., M.W.S., &c. London: John Van Voorst. Parts 2 and 3. August and September, 1841.

THE second part of this elegant work contains portraits and descriptions of four trees;—the wild cherry, the whitethorn, the mountain ash and the common ash. Mr. Selby considers the cherry well worth cultivating as an ornamental tree, principally on account of the profusion of its flowers at an early period of the year, and the rich purple tints of its foliage in the autumn. The whitethorn, or quickset as we term it, is more apt to be regarded as the staple commodity of our trim English hedges than as a forest tree; still, Mr. Selby has selected so noble a specimen as an illustration of the species, that it reminds us of a figure we have somewhere seen of the gigantic ‘chestnut of a hundred horse’ long celebrated by travellers. The rowan, that familiar tree, is represented more in accordance with our ideas of its magnitude.

“The mountain ash grows in almost every district of Britain, but its favourite habitats and where it reaches its greatest size and most imposing appearance, are mountainous declivities, or in those deep dells in mountainous and hilly districts, where the earth is loose and free, and kept in that moist state most congenial to its growth, by the percolation of the rain and dews, or of springs which issue from the disrupted rocks. In such localities it frequently becomes a tree of the second or third magni-

tude, with a form generally devoid of that stiffness and round-topped outline it usually assumes under cultivation, or as seen in dressed and garden grounds. In old trees situated in such wild scenery, the branches lose their formal appearance, and as they become elongated and unable to sustain the annually increasing weight of the foliage, gradually yield and take a partially pendant direction. Such are many of those groups which claimed the approving notice of Gilpin, and which we have oft admired in the wild and enchanting scenery of the Scottish Highlands; and such were the old and venerable trees in our own romantic dene at Twizell, before the destructive storms of the last few winters overthrew and laid low the leafy honours of the largest and finest among them. In addition to a light and graceful foliage, charming us with its fresh and lively tint, the mountain ash, in spring, bears conspicuous and sweet-smelling corymbs of cream-white flowers, and as the autumn advances, its berries, of the richest coral hue, give it a singularly pleasing and beautiful effect;—

“How clung the Rowan to the rock
And through the foliage showed his head
With narrow leaves and berries red;—”

and add to the contrast produced by its mixture with the deep green of the pine, and the tufted and waving foliage of the spiry birch, two of the usual and most predominating trees in those localities in which it most delights. It is not, however, to be despised, or its cultivation neglected, in scenery of a tamer and less stirring description, and, loaded with its rich and glowing fruit, it is one of the greatest ornaments to the pleasure gardens of suburban villas.” p. 77.

The third part contains the English elm, the cork-barked elm, the wych elm, the smooth-leaved wych elm, and the common walnut. A figure of some noble specimen of each tree accompanies the description, which is always very complete, giving the history, appearance, mode of culture, uses, and every other particular that can interest the enquirer.

The work abounds in useful hints to planters, and practical observations on the effect produced by the propinquity of other trees. Of the ash the author observes it is best planted without admixture of other trees, as from its mode of growth it proves one of the worst of neighbours in mixed plantations, particularly to the oak, which it lashes and destroys by its heavy and easily swayed head. On the other hand the cherry is strongly recommended to the planter's notice, both on account of its value for underwood and as a timber tree, and particularly as being—

“one of the few trees that can be advantageously planted as a nurse or subsidiary to the oak, as it is neither apt to overtop or crush its neighbours by a rampant growth or wide spreading head like the wych elm or the ash, or to hurt and injure them in winds and storms, as is constantly the case where trees with a more flexible or easily agitated spray are introduced. It has also this further recommendation as a nurse to the oak, that, although a quick growing plant while young, and fulfilling the duty of a protector, it naturally yields to the tree it has fostered after the first twenty or thirty years of its growth, and is afterwards content to vegetate beneath its shade, rendering

it even as a mere neighbour the least dangerous to oaks in cases of neglect, or where regular thinning has not been duly administered.”—p. 61.

We are gratified in observing that the words “Indigenous and Introduced” have been inserted in the title on the wrappers of the parts before us, in accordance with a suggestion in our notice of the first part of this work.

ART. XXIX.—*Varieties.*

34. *Polypodium calcareum* and *Dryopteris*. I consider these plants to be quite distinct, the former having truly the erect habit which Smith describes; I believe also that the pubescence is constantly present in *P. calcareum*. The two species are generally found in different habitats, but in a wood on the side of Ingleborough, as you go to Weathercote, they are found in company. I have cultivated them side by side for many years, with their respective characters unchanged. — *W. Wilson* ;* *Warrington*, July 5, 1841.

35. *Woodsia Ilvensis* and *hyperborea*. I have never had the slightest difficulty in distinguishing these plants, the first by its ovate, the second by its oblong pinnæ. *Woodsia Ilvensis* was found by me many years ago near Llyn y Cwn, and by no one else in modern times, but those whom I have directed to the spot. I believe however it is the “*Filix Alpina*, *Pedicularis rubræ foliis subtus villosis*” of Ray (Syn. 118), although I must confess I have only seen *Woodsia hyperborea* on Clogwyn y Garnedd, the habitat recorded by Ray.—*Id.* July 5, 1841. In a short visit to the Snowdon district last month, I found a few plants of *W. Ilvensis* in the old locality, but they appeared weak and dwindling for want of sufficient earth.—*Id.* September, 1841.

36. *Botanical Excursion to Teesdale*. Having arrived at Middleton, in Teesdale, Durham, a little before 12 o'clock on the 21st of August, 1838, after taking some refreshment I set off for Langdon beck, cheered by sun-gleams, which had suddenly succeeded heavy clouds and rain. I reached my destination at 2, and secured, as a guide, the landlord of the unpretending little public-house, on whose pony we crossed the deeply swollen beck, our first obstacle in progressing to Widdy-bank and Caldron Snout, (incorrectly given Spout by Francis and Hooker). And here allow me to hint to botanists who may visit this place, in search of plants the locality of which is simply given as Widdy-bank, to take a guide as they desire success in their search, since Widdy-bank is a tract of country extending about three miles square, and thus a very indistinct description for the locality of a small plant. We had not proceeded far when we found *Bartsia alpina* in great abundance, principally either young plants or in seed; I was however fortunate enough to secure three in flower. A little farther on, and extending over a large space, was *Tofieldia palustris* in seed. We then saw many plants of *Gentiana verna*, not far from the side of the river; and, mounting higher ground, discovered one tuft of *Carex pulcaris*. The remainder of our way, until we reached the Snout, was unproductive. There, growing out of the crevices of the rock on the Durham side, were *Festuca vivipara* and *Polypodium Phegopteris* in great luxuriance. We crossed the stream by its narrow bridge, into the county of Westmoreland, but dared not extend our ramble, in consequence of the threatening aspect of

* In a letter to E. Newman.

newly accumulated clouds, so that I considered myself amply rewarded by finding *Cnicus heterophyllus*, *Habenaria viridis* and *Gentiana campestris*. Recrossing the bridge we pursued the course of the stream, which, almost immediately below the Snout, takes a sudden turn, and thus we found our track hemmed in by the over-laden Tees on our right hand, and the lofty basaltic rocks called Falcon Clints on our left. My eye was now anxiously directed to the face of these rocks, to discover, if possible, the chief object in taking our present course—*Woodsia Ilvensis*. Rain now began to fall heavily, and the wind, which had been all day very tempestuous, bore it against us so as to render observation, either of locality or objects, very imperfect. However, after tracing as near as I can judge about 400 yards, I espied some small specks of green through the broken fragments of a stream which poured over the Clints, and under which I soon stood, pulling hastily the patches I had seen, and these, to my delight, proved to be two small plants of the *Woodsia*, mixed with a few fronds of *Asplenium viride* and *Cistopteris fragilis*. The state of the weather, for by this time the rain had penetrated a Mackintosh cape, rendered all further search impracticable; we therefore retraced our path as quickly as possible to our starting-point, having picked up as we proceeded *Sedum villosum*, *Lycopodium Selago* and *Selaginoides*, *Galium boreale* and *Solidago Virgaurea*, all of which were growing in great profusion. On the following day I went in the opposite direction, into Baldersdale, to gather *Saxifraga Hirculus*; and here again I provided myself with a guide, a requisite in search of a plant which is confined in its growth to a very limited area. It grows on the surface of a very lofty and exposed hill to the south of the Balder, at the exact point of its junction with the Black beck. The storm of wind and rain was violent as yesterday, and I was once more completely “wetted to skin,” even through another Mackintosh cape: but I do not complain; I found the plant in great plenty and luxuriance, growing among moss, and where I had to stand at least six inches deep in water whilst I gathered it. The storm again prevented further search, or any advance lower down the beck for the purpose of gathering *Epilobium angustifolium*, which grows there. Yet let it not be supposed that the wettings were not counterbalanced, when *Woodsia Ilvensis* and *Saxifraga Hirculus* were in the scale against them. — *Samuel Simpson*; *Lancaster, Aug. 19, 1841*.

37. *Avena alpina* found in Yorkshire. Whilst on a visit to a friend near Settle a fortnight since, Mr. J. Tatham took me to a hill above that town to gather *Avena alpina*, which had been discovered there for the first time a few weeks previously, by himself; and in the evening of the same day I discovered it in a hazel wood, a little northward of Stackhouse near Settle, in great abundance. I mention this, thinking it may be interesting to know that this almost exclusively Scottish plant has a habitat in Yorkshire. I believe it was not known to Mr. Baines as having been found in that county.—*Id. August 25, 1841*.

38. *Asplenium lanceolatum*. It affords me pleasure to be able to communicate what I am sure will be interesting to you, viz., a locality for the rare *Asplenium lanceolatum*, not mentioned in Mr. Newman's delightful little work on the ferns. Mr. J. W. Ewing, of Norwich, who resided here for some time a few years ago, discovered the plant growing on a bank at Stapleton, about three miles from Bristol, and pointed out the spot to me. Not paying much attention to the ferns at that time, the circumstance escaped from my memory, until reminded of it by a friend who was with us at the time. I have recently revisited the spot and again found the plant, but growing there very sparingly; however, by searching very diligently, day after day, the rocks in the

immediate neighbourhood, I discovered it in one or two other places, and in one of these abundantly, covering the dry surface of a rock completely sheltered from rain, and, though its roots are almost exposed and a slight pull detaches it from the rock, it grows in the greatest luxuriance, one frond which I gathered measuring eighteen inches in length. I have observed in all the fronds of this fern which I have gathered, that the rachis is throughout its entire length furnished with linear scales, a character which best distinguishes it in all its forms, and even in its very young state, from *Asplenium Adiantum-nigrum*.—*G. H. K. Thwaites*; 2, *Kingsdown Parade, Bristol, August 31, 1841.*

39. *Lilium Martagon*. In addition to your stations for *Lilium Martagon*, I may mention Ash, near Wrotham, Kent, where it grows plentifully in a very wild situation on an estate belonging to Mr. Gladdish.—*N. B. Ward*; *Wellclose Square, September 1, 1841.*

40. *Anagallis arvensis* and *cærulea*. I have this season been able to preserve two fine plants of *Anagallis cærulea* on the spot where those raised from your Reigate seeds stood some years ago; they are spreading on the ground with some stems more than two feet long. *Anagallis arvensis* has also been preserved close by, with stems nearly as long; both keep to their colours. I have often endeavoured to find some satisfactory specific distinction between these plants, but can discover none that would enable a person to distinguish them when not in flower. The *cærulea* is still the most robust plant, as formerly, and has larger leaves, with the veins more prominent on the back than in *arvensis*, the points of the shoots too are inclined to be somewhat erect, until borne down by their own weight as they advance in growth. The corollas are finely lacinated, as in the plants raised from the original seeds. Perhaps the stalked glands on the margin of the corolla of *arvensis* would be the best distinguishing character, if the plants are to be considered two species. The points of the shoots of *arvensis* have not the same tendency to ascend as those of *cærulea*.—*David Cameron*; *Botanic Garden, Birmingham, September 3, 1831.*

[The seeds of *Anagallis cærulea* from which Mr. Cameron's first plants were raised, we had the pleasure of collecting near Reigate, in July, 1836. They were immediately forwarded to Birmingham, and plants with the blue lacinated corolla have annually sprung up in the same spot ever since that time; nor, we believe, has *A. arvensis* once made its appearance among them, but has kept its own station close by. We may perhaps, at some future time, lay before our readers all the evidence we can collect at all bearing on the question of the specific identity or distinctness of the two plants: in the mean time we should be obliged by the communication of any facts relating to the point at issue. It should perhaps be mentioned that we have never heard of *Anagallis cærulea* being found wild near Birmingham.—*Ed.*]

41. *Ulex strictus*, or *Irish Furze*. Did I ever mention having saved seeds of the *Ulex strictus*, or Irish furze, in 1839, which were sown under glass in the spring of last year, and the seedlings transplanted out of doors in autumn? Of eight plants so obtained there is not the least deviation in the appearance from that of the parent; which, although no decided proof of the plant being a genuine species, would go far to make me conjecture that it is so.—*Id.*; *Sept. 17, 1841.*

[*Ulex strictus*, Mackay, 'Cat. Irish Plants,' p. 67. is recorded in the 4th edition of Hooker's 'British Flora,' as *U. Europæus*, var. *β. minor*. It is extremely different in appearance from *U. Europæus*, and we cannot help thinking them specifically distinct. The *Ulices* do not appear to be well understood.—*Ed.*]

42. *Enquiry relating to the Plates of Leighton's 'Flora of Shropshire.'* I beg to enquire, through the medium of 'The Phytologist,' which of the nineteen plates in Leighton's Flora has either figures or sections of the fruit or appendages of any of the six following species of *Carex* described in the 4th vol. of Smith's 'English Flora,' &c. &c.; viz., *C. angustifolia*, *Mielichhoferi*, *speirostachya*, *stictocarpa*, *tenella* and *ustulata*?—*Saml. Gibson; Hebden Bridge, September 7, 1841.*

[Our correspondent will find figures and a section of the fruit of *Carex ustulata*, on the right hand side of plate 16, p. 461, of the Shropshire Flora; the other five *Carices* enquired after, and which are described as species in the 'English Flora,' are not now considered to be entitled to that rank. We are decided enemies to the multiplication of species on insufficient grounds; and have long been of opinion that at least the *Carex stictocarpa* and *angustifolia* of 'English Flora,' possessed but weak claims to the rank assigned to them by the author. Sir W. J. Hooker was unacquainted with both when the earlier editions of his 'British Flora' appeared; and in the 4th edition of that work *stictocarpa* appears as a synonyme of Hudson's *C. recurva*, and *angustifolia* bears the same relation to *C. cæspitosa*, Linn. Of the plant described in 'English Flora' as the *Carex tenella* of Schkuhr, Sir W. Hooker asks in the earlier editions of his Flora, "May it not be a starved state of the following?" (*C. remota*); he subsequently appears to have had reason for believing this conjecture to be well founded, for in the 4th edition of that work, we find *C. tenella* sunk into a synonyme of *C. remota*, Linn. A like fate has befallen the two remaining *Carices*, respecting whose whereabouts our correspondent enquires. The facts of the histories of the plants described in 'English Flora' as the *Carex Mielichhoferi* of Willdenow and *C. speirostachya*, Swartz, seem to have been somehow or other confounded in such a manner that it would now perhaps be difficult to unravel the mystery; suffice it to say that in the last edition of the 'British Flora,' the latter has been referred to *C. fulva*, Good., as a variety, and the name of the former appears as a synonyme of *C. phæostachya*, Sm. And even of *C. phæostachya* itself Sir W. Hooker remarks, "In deference to the opinion of Mr. Borrer, I rank this as a species; but it is probably only a variety of *C. panicea*, with less glaucous (greener) herbage and a bifid beak to the fruit. The above synonymes are referred hither at the suggestion of Dr. Boott." This gentleman has for several years past made the *Carices* his particular study; and Sir W. J. Hooker expresses his acknowledgments to him "for many valuable remarks and improvements both in the arrangement and definition" of the *Carices*, for the fourth edition of the 'British Flora.'

While on a subject connected with Mr. Leighton's 'Flora of Shropshire,' we embrace the opportunity of laying before our readers the following complete list of species and varieties new to the British Flora, described in that work. The list may be regarded as a supplement to the 'Catalogue of British Plants' printed for the Botanical Society of Edinburgh.—*Ed.*]

Viola imberbis, Leight.

Chenopodium intermedium, Mert. & Koch.

Cuscuta Epilinum, Weihe?

Dianthus plumarius, Linn.

Oxalis Acetosella, Linn. β. purpurea.

Spergula vulgaris, Bönningh.

Reseda alba, Linn.

Cerasus austera, Leight.

Pyrus Malus, Linn.

α. sylvestris, Leight.

β. sativa, Leight.

Rubus affinis, W. & N.

β. W. & N.

γ. W. & N.

- Rubus rhamnifolius*, *W. & N.*
a. rhamnifolius, *W. & N. Lind. & Bor.*
β. rhamnifolius, *W. & N. and Lindl.*
(corylifolius, Sm.) Borr.
- Rubus discolor*, *W. & N.*
 — *vulgaris*, *W. & N.*
 — *villicaulis*, *Koehl.*
 — *Leightoni*, *Lees' MS.*
 — *echinatus*, *Lindl.*
 — *Schleicheri*, *W. & N.*
 — *dumetorum*, *W. & N.*
- Ranunculus fluitans*, *Lam.*
 — *acris*, *Linn. β. minor, Leight.*
 — *aquatilis*, *Linn.*
γ. tripartitus, Leight.
- Ballota ruderalis*, *Fries.*
(B. nigra, Linn. Fl. Suec.)
 — *foetida*, *Lam.*
(B. nigra, Linn. Sp. Pl.)
β. alba.
(B. alba, Linn. Sp. Pl.)
- Galeopsis Ladanum*, *Lin. β. Sm. Eng. Fl.*
- Stachys palustris*, *Linn.*
β. intermedia, Leight.
- Cardamine sylvatica*, *Link.*
- Sinapis arvensis*, *Linn.*
a. vera, Bab.
β. retro-hirsuta, Bab.
- Malva vulgaris*, *Trag.*
(M. rotundifolia, Auct. non Linn.)
- Fumaria*, *n. sp. ?*
- Trifolium striatum*, *Linn.*
β. erectum, Leight.
- Lotus major, Scop.*
a. vulgaris, Bab.
β. glabriusculus, Bab.
- Hypericum tetrapterum*, *Fries.*
 — *maculatum, Crantz.*
(H. delphinense, Vill. et Reich.)
- Tragopogon minor, Fries.*
- Hypochaeris glabra, Linn.*
a. vera, Bab.
β. Balbisii, Bab.
- Hieracium boreale, Fries.*
- Senecio erucæfolius, Huds.*
 — *erraticus, Bertol.*
- Orchis majalis, Reich.*
- Epipactis viridiflora, Reich.*
- Callitriche pedunculata, DC.*
a. vera, Bab.
β. sessilis, Bab.
 — *platycarpa, Knz.*
- Carex flava, Linn. β. polystachya, Koch.*
 — *hirta, Linn. β. Sm. Eng. Fl.*
- Littorella lacustris, Linn.*
β. hirsutus, Leight.
- Myriophyllum alterniflorum, DC.*
- Quercus intermedia, Don.*
- Betula alba, Linn.*
β. pendula, Sm.
γ. salax, Leight.
δ. pubescens, Leight.
- Taxus baccata, Linn.*
β. Dovastoniana, Leight.
- Atriplex deltoidea, Bab.*

43. *Yellow-flowered Variety of Gentiana Amarella.* A few weeks back I found on Betchworth Hill, near the noted clump of trees, a yellow-flowering gentian, apparently a variety of *Gentiana Amarella*. I found two or three specimens nearly in the same place about four years since.—*Jno. R. Henness ; Betchworth, Surrey, Sept. 12, 1841.*

[We possess a specimen of *Gentiana Amarella* with yellow flowers found last year on Betchworth Hill ; it is a very pretty variety.—*Ed.*]

44. *Plants at Nottingham.* If the following short notice of plants found in the vicinity of Nottingham, in August, 1841, is likely to be interesting to any of the readers of the 'Phytologist,' it is quite at your service.—*Joseph Sidebotham ; 26, York Street, Manchester, September 14, 1841.*

Hippuris vulgaris.

Crocus nudiflorus. Nottingham meadows.

Brachypodium pinnatum.

Gentiana Amarella.

Fœniculum vulgare.

Parnassia palustris.

Silene nutans. Common on rocks. Since the burning of Nottingham Castle, this plant has completely overspread the ruins.

<i>Clematis Vitalba.</i>		<i>Hypericum montanum.</i>
<i>Cheiranthus fruticosus.</i>	Nottingham	<i>Gnaphalium rectum, uliginosum, minimum and Germanicum.</i>
	Castle-rock.	
<i>Geranium pratense.</i>	Meadows near the	<i>Erigeron acris.</i> Mapperly Hills.
	Trent.	<i>Sagittaria sagittifolia.</i>
<i>Lathyrus sylvestris.</i>		<i>Bryonia dioica.</i>
<i>Vicia sylvatica.</i>	Oxton Forest, in the	<i>Grammitis Ceterach.</i>
	greatest profusion.	<i>Aspidium Thelypteris.</i>
<i>Ervum tetraspermum.</i>		——— cristatum. Oxton bogs, very local
<i>Ornithopus perpusillus.</i>		——— spinulosum.
<i>Trifolium fragiferum.</i>	Banks of the Trent	<i>Asplenium Trichomanes & Ruta-muraria.</i>
	near Wilford Ferry.	——— <i>Adiantum-nigrum.</i> Common
<i>Medicago maculata.</i>		on rocks in Nottingham Park.

45. *Drosera rotundifolia*, β . *ramosa*, (Phyt. p. 23). This pretty variety grows in great plenty, together with the usual state of the plant, on Carrington Moss, Cheshire, seven miles south of Manchester. The same individual often bears simple and compound racemes, as mentioned by Mr. Leighton. There does not appear to be any difference sufficient to form a specific distinction. All three species of *Drosera* grow within seven miles of Manchester; *D. longifolia* being found on Baguley Moor, and *D. Anglica* abundantly in various localities.—*Leopold H. Grindon*; 4, *Portland Street, Manchester*, September 15, 1841.

46. *Orobanche barbata*, (p. 29). This species is found upon St. Vincent's Rocks, near Bristol, where I had opportunities for examining it several years in succession. It grows chiefly upon the ledge under the suspension bridge, and is always parasitic upon ivy. The *O. minor*, which I consider perfectly distinct, I have gathered in clover fields, between Clevedon and Walton, Somersetshire, twelve miles S.W. of Bristol. It also springs up occasionally on a steep grassy bank overhanging the sea, growing intermixed with *Anthyllis vulneraria*, *Chlora perfoliata*, *Orchis pyramidalis*, &c., and exposed to the spray of every tide.—*Id.*

47. *Tilia*, (p. 44). I think it is in the 'Mag. Nat. Hist.' that there are some remarks by Mr. Edwin Lees on the legitimate claim of the lime-tree to be considered British. Worcestershire and Herefordshire are the counties named as those wherein it is found most truly wild. I can add Leigh Woods, Somersetshire, to the list of localities. On the craggy precipitous sides of Nightingale Valley are several fine specimens, with every circumstance in their favour as being of spontaneous growth. I should like to see an article in 'The Phytologist' on the right of this tree to be reckoned an "ancient Briton."—*Id.*

48. *Lycopodium*. Anything in reference to this genus will be interesting, I presume. Four of the six species grow near Manchester, but neither of them in any quantity. On a wild desolate moor called Fo-edge, about fifteen miles north, *L. clavatum*, *Selago* and *alpinum* are found within a few yards of each other, together with a vast profusion of *Allosorus crispus*, which flourishes there in extraordinary beauty. *L. inundatum* is plentiful on Baguley Moor, a spot of much celebrity among Manchester botanists. In addition to the three *Droseras*, the following plants are produced there:—

<i>Veronica scutellata</i>	<i>Eleogiton fluitans</i>	<i>Radiola Millegrana</i>
<i>Eleocharis caespitosa</i>	<i>Eriophorum angustifolium</i>	<i>Anagallis tenella</i>

Rhamnus Frangula	Alisma ranunculoides	Littorella lacustris
Menyanthes trifoliata	Spergula nodosa	Osmunda regalis
Gentiana Pneumonanthe	Aquilegia vulgaris	Chara translucens
Sium inundatum	Polygala vulgaris, <i>alba</i>	— flexilis. — <i>Id.</i>
Erica Tetralix	Myriophyllum spicatum	

49. *Spurless Variety of Dog Violet.* We have lately received specimens of a form of *Viola canina*, in which the flowers are said to be always destitute of a spur; thus assuming a regular figure. It has been found abundantly in Bedfordshire, by Mrs. Gye, a correspondent of Dr. Daubeny. Thus, in the violets, we have on the one hand this return to a regular type, and on the other, a complete state of irregularity in those instances, observed in *V. rothomagensis*, *hirta*, and others, in which the petals have each a spur. This lady's violet is at this season of the year apetalous—a frequent occurrence in *V. mirabilis*, *montana*, and many others; including the common sweet violet.—*Gardeners' Chronicle*, September 11, 1841.

50. *Neglected Garden in Jamaica.* At Cold-spring estate (4378 feet above the sea), once the seat of the Wallens family spoken of by Bryan Edwards, we found the remains of a garden, in which European and tropical vegetation were strangely blended together, and where the plants and trees of both worlds seemed equally to luxuriate. The fences leading to it were garnished with the white rose and the (*Rosa*) *multiflora*; strawberry plants in fruit and flower carpeted the ground: the Guernsey lily, the *Agapanthus*, the beautiful *Begonia* and the columbine, were the wild flowers of the region. Here we saw the English oak and Spanish chestnut spreading their noble branches, and almost under their shade the tea-plant and coffee-tree were in full flower. On one side of the garden was a *Magnolia* tree, of two trunks rising from a single stem, each trunk about 14 inches in diameter, and a little farther on, on the mountain slopes, large copses of the English furze and broom, rich with yellow, affording a retreat for the quail and partridge. Our horses browsed on strawberry-leaves as on common grass: the fruit is small but refreshing, and sells for 1s. a quart in Kingston market. Near this strange spot the apple-tree was in bearing, and we saw artichokes, carrots, cabbages, green peas and parsneps. St. Catherine's top was 600 feet above us, encircled by mountain mist, and the clouds were rolling in dense masses below us: it was a strange and wonderful scene, and we hardly knew how to admire it enough.—*John Candler's Journal*; Part 2, *Jamaica*.

51. *Meyen's Pflanzengeographie.* Mr. Al. Irvine has been for some years engaged in the translation of Meyen's work on the Geography of Plants. In a future number we hope to lay before our readers some extracts from our respected correspondent's translation.—*Ed.*

ART. XXX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

September 3.—John Edward Gray, Esq., F.R.S., president, in the chair. The following donations were announced:—Numerous specimens of *Aspidium cristatum*, from the Rev. George Munford, collected by him at Bawsey Heath, near Lynn, Norfolk. Specimens of Australian woods, from Dr. John Lhotsky. British plants, from the Rev. Andrew Bloxam, Mr. S. Warner, Mr. S. P. Woodward, and Miss Anne Worsley. 138 species of British mosses, from the secretary, collected by Mr. W. Gardener, Jun., of Dundee. Books, from the secretary, Mr. Woodward, and Mr. W. G. Perry. Lieut. James Tilley, R.N. presented specimens of the elm leaf from their opening in April to their attainment of summer perfection, and thence through their falling changes to the end of decay. Mr. John Reynolds, treasurer, communicated a paper "On the Development of various parts in Plants," translated from a paper by Professor Meyen.—*G. E. D.*

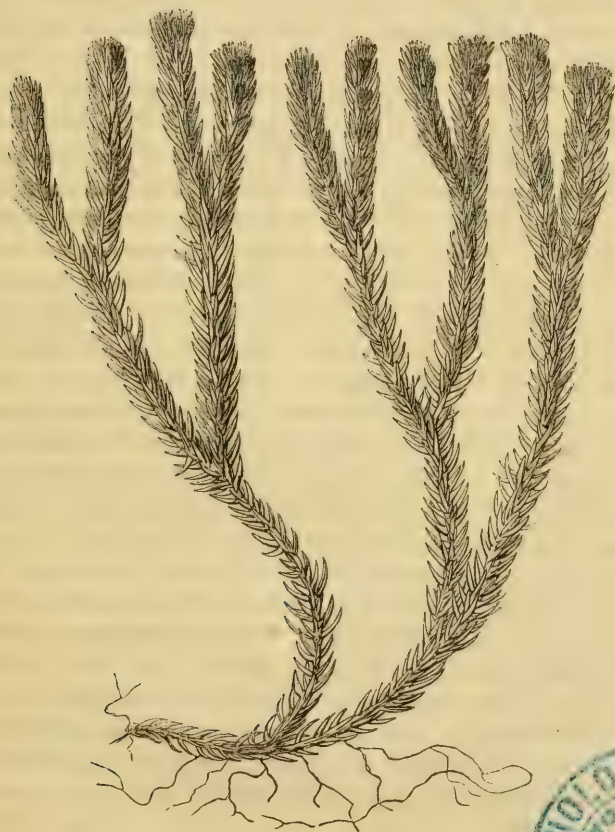
THE PHYTOLOGIST.

No. VI.

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PRICE 6D.

ART. XXXI.—*A History of the British Lycopodia and allied Genera.*
By EDWARD NEWMAN. (Continued from page 67).



THE FIR CLUB-MOSS.

LYCOPODIUM SELAGO of Authors.



LOCALITIES.

England.	}	In all our mountain districts.
Wales.		
Scotland.		
Ireland.		

THE Fir Club-Moss, next to the common Club-moss, is the most abundant of our British species; it is however almost exclusively confined to alpine districts, growing on bare and bleak mountain slopes, or occasionally rooted in the fissures of rocks. I found it abundantly in the Western Highlands of Scotland, and have received specimens or records of habitats from my kind correspondents at Edinburgh, showing it to be a plant of general occurrence among the Scottish hills; and Mr. C. C. Babington informs me he found it in August last in Harris and North Uist, two of the outer Hebrides. From the North of England I have also received a variety of habitats, far too numerous to detail; and in North Wales it is abundant on the ranges of which Snowdon, Cader Idris and Plinlymmon are the more notorious summits. In the midland and southern counties of England we find it more sparingly distributed. I have specimens before me from the Titterstone Cleve Hill, Shropshire, found by Mr. Cameron; from Moseley Common, Worcestershire, by Mr. Luxford; from Felthorpe Bog, Norfolk, by Mr. Wigham; from Leith Hill, Surrey, and Tilgate Forest, Sussex, by Mr. J. A. Brewer; and from Woking Common, by Mr. D. Cooper: Mr. C. C. Babington has found it also on Waldron Down, Sussex. It is said to grow in Derbyshire, Oxfordshire and Devonshire, but I have not seen examples from these counties.

On the Welsh mountains I have observed that only a portion of the plants appear to be in a thriving and healthy condition; the larger ones almost invariably being loaded with fructification, and exhibiting symptoms of incipient decay. With the exception of Dillenius I think no author has noticed this peculiarity; and this learned writer rationally concludes that each plant exists for a definite term and then dies.* Whether the term of its existence be biennial, triennial, or longer, I leave for future observers to decide; but I have not the slightest doubt that its existence has a fixed term, as suggested by the great muscologist.

* Quum ante 14 annos montes Cambriæ plantarum gratia peragrarerem, Augusti fine, plures plantæ semiaridæ et quædam mortuæ mihi visæ sunt, cum initio hujus mensis omnes virerent; id vero tam in majoribus quam in mediæ magnitudinis plantis mihi observatum. Ex quo singulas aliquot annos durare et postea interire conjicio. Dill. 'Hist. Musc.' 436.

The figures of this plant can scarcely fail of being characteristic, its appearance is so different from that of our other species: Dillenius figures several varieties, all of them very expressive of its distinguishing features. These varieties appear to be the result of locality: when last at the Birmingham Botanic Garden, Mr. Cameron called my attention to some living specimens which he had himself collected on the Titterstone Clee Hill; in these the lower leaves were considerably narrower and somewhat reflexed, and the plants (as indeed do all from the same locality) exhibited a uniform although scarcely describable difference from those of Scotland, the North of England, and Caernarvonshire; and these again differ from the specimens collected in Norfolk, Sussex and Surrey, which are also of uniform appearance, of much smaller size, and have the branches obtusely pointed rather than flat-topped. When rooted in the fissure of a rock it occasionally assumes a pendulous character, the branches being very long and their extremities recurved; in this state the whole appearance of the plant is graceful and elegant, and totally dissimilar to its normal form; such specimens I have found on the rocks in the Pass of Llanberis, and my brother has lately procured a fine example on the ascent of Plinlymmon. Mr. Babington in a note to me observes, "I have a curious specimen which was growing under a rock near Llanberis, in which the stems are prostrate and about a foot in length, and the leaves less densely placed than is usual in the species."

This species has received credit for many extraordinary medical properties; I shall record only a few of these. In the 'Flora Prusica' it is recommended as a specific for ruptures, bruises, &c. Breyanius asserts that a decoction of it destroys the lice which infest man; and Linneus informs us that the Swedes employ it to kill those of swine and cattle. Schwenckenfeldius says that is used by countrymen as a cathartic and emetic; and Linneus, on the authority of Rothman, adds that it is sold, though not commonly, in the chemists' shops of Sweden, under the name of "*muscus catharticus*," and is prescribed in the form of a decoction as an emetic; but remarks that the dose must be very weak, otherwise it is likely to produce convulsions. Lightfoot says that it is taken by the Highlanders both as a cathartic and emetic, but unless used in small quantities it induces giddiness and convulsions; he also informs us that in the island of Raasay, near Skye, and in some other places, it is used instead of alum, to fix colours in dyeing woollen cloths.

The roots are numerous, tough, wiry, tortuous, and often divided. They are emitted from divers parts of the stem, always however where

it is in contact with the earth. The plant in its normal form appears to be perfectly erect, but its hold on the ground being apparently insufficient for the maintenance of this position, it generally becomes partially recumbent, as represented in the figure. This change takes place as soon as the plant has risen above the stunted herbage with which it is commonly surrounded, and has thus subjected itself to the action of the violent winds that seem to be almost incessantly sweeping the mountain-sides.

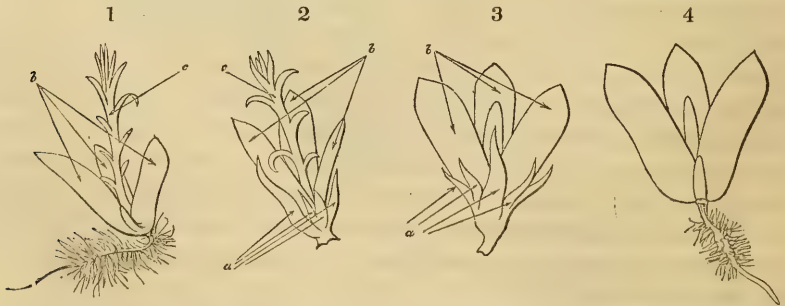
The stems are repeatedly dichotomous, stout, rigid, somewhat flat-topped, and usually erect.

Every part of the plant is densely clothed with rigid, lanceolate, acute, entire leaves, much resembling those of *Lycopodium annotinum*. At the upper extremity of each branch a portion of these leaves become transformed into irregular 6-cleft calyces or cups,

very closely resembling the perichætia of mosses; the outermost lobe of the six which compose this cup is longer and larger than the rest, and of the pair on each side one is generally incumbent on the other, so as nearly to conceal it; this was overlooked by Lightfoot, who, in speaking of the cup, describes it as consisting of "four stiff, lanceolate, incurved, minute leaves." This perichætial cup is shown in the margin, and also at *a a*, in figures 2 and 3 of the cut below. Lightfoot, in continuing his description,



goes on to say, "at the bottom of this calyx are five small pellucid substances resembling leaves, which are supposed to be analogous to pistils, these in time grow up into three large broad leaves, two united together like the hoof of an ox, &c." I have only examined these parts when in the mature state. Instead of terming the interior pro-



cesses *leaves*, I should be inclined to say that within each perichætial cup already described, is situated a kind of flattened gemma or bud,

consisting of five distinct lobes or component parts, combined at the base; the three inner lobes are large, prominent and conspicuous, even to the naked eye, (*b* in figures 1, 2 and 3); the two outer lobes are very small, and may easily be overlooked, one of them is closely appressed to the anterior, the other to the posterior surface of the bud.* These buds, which have no representatives in either of the previously-described British species of *Lycopodium*, are truly the germs of future plants, as each, when mature, is detached from its perichæatial socket with the slightest touch, falls to the earth, and germinates with the greatest readiness: figure 4 represents a bud thus germinating; it is drawn from a specimen found in a state of nature. From the under surface of what may be termed the collum or neck of the bud, is protruded a single stout root, at first very pilose, but soon becoming smoother; and in the centre of the three large lobes appears what might readily be mistaken for a sixth and central lobe, but which is, in reality, the undeveloped stem or ascending axis of the young plant. This part is very observable in figures 3 and 4, in the centre of each figure. As germination advances this axis gradually becomes elongated upwards by the successive unfolding of the leaves, which are spirally arranged round it. The stem in this advanced state is shown at *c c*, in figures 1 and 2. When the leaves first unfold at the apex of the stem they are erect, but soon assume a spreading direction, and finally become reflexed.

Whether these buds remain attached to the parent plant or fall to the ground, their germination proceeds in the same manner; for when grown in a closed glass case, a situation which precludes the action of wind and rain, and therefore lessens the chance of their being dislodged, the buds germinate *in situ*, giving to the extremity of each branch a bushy and very remarkable appearance. A single bud thus growing in its perichæatial socket is shown at figure 2. A plant from the Titterstone Clee Hill, cultivated by Mr. Luxford in a closed glass, died during the second year, leaving green and vigorous young ones growing on the parent stem. Some of the gemmæ were accidentally detached when the specimen was planted in the glass about twelve months ago; these have vegetated on the surface of the soil and produced young plants, one of which is now more than an inch high.

It appears to me that by these gemmæ the plant is so abundantly

* Dillenius was the first to notice these gemmæ. "Eodem tempore observavi per ramos præsertim superiora versus e foliorum alis, corpusecula cristata, crebra rigida e sex laciniis inæqualibus composita." 'Hist. Musc.' 436.

propagated in a state of nature, and not by its seeds. In a paper by Sir J. E. Smith, printed in the 'Transactions of the Linnean Society,' Mr. Joseph Fox, of Norwich, is said to have raised young plants of *Lycopodium Selago* from seed. The record of these experiments appears to me very unsatisfactory, as no detail is given, and I am quite inclined to suppose that the gemmæ were mistaken by that industrious individual for the seeds; if so, his observations have been verified by many subsequent cultivators.*

I have already stated that the perichæatial leaves and their buds occur near the extremities of the branches; below them, and in the axils of the ordinary leaves, are produced the true thecæ, each ultimate branch being alike fertile throughout the greater part of its length. The thecæ are sessile, large, yellow, reniform and bivalve; their dehiscence is rectilinear and longitudinal, but rarely takes place in a state of nature. In every plant that I have examined while living, the thecæ have been firmly closed; by pressure however they may be compelled to open, when they are found to



be filled with minute yellow seeds. A detached leaf with its axillary theca is represented in the margin.

The *Lycopodia* of Britain being now enumerated, I think it best to state in answer to some direct enquiries and for the information of botanists generally, that this little monograph will not be reprinted in a separate form. I think it due to the subscribers to 'The Phytologist' to give them this assurance. I take this opportunity of returning my best thanks to those botanists who have so kindly assisted me in the genus *Lycopodium*, and of soliciting information respecting *Isoetes* and *Pilularia*. Among the specimens of *Isoetes* which I have seen, there appear two constant varieties, unaltered by locality or season; they grow side by side in the lakes of Caernarvonshire. Any information tending to prove that these are or are not species, will be very thankfully received. In order to allow time for communications on these genera, I shall not describe either of them in the December number of 'The Phytologist.'

EDWARD NEWMAN.

* The passage referred to is as follows:—"Mr. Joseph Fox, a journeyman weaver of Norwich, * * * showed me in the year 1779 young plants of "*Lycopodium Selago*," raised from seed in his own garden." 'Lin. Trans.' ii. 315.

ART. XXXII.—*List of Plants growing about Settle, Yorkshire.*

BY JOHN TATHAM, JUN. ESQ.

Settle, 10th mo. 16th., 1841.

Respected Friend,

Annexed is a list of plants either seen or gathered lately by myself in the neighbourhood of Settle; shouldst thou think it worthy to be inserted in 'The Phytologist,' thou art quite at liberty to do so.

I remain respectfully,

JOHN TATHAM, JUN.

- Thalictrum minus*. On our alpine limestone hills.
Trollius europæus. Abundant in various localities.
Helleborus viridis and *fætidus*. Rather scarce, in two localities.
Aquilegia vulgaris. Common in our woods.
Actæa spicata. Abundant on Ingleborough, Gordale and Hesleden Gill.
Papaver dubium. Common about Settle.
 ——— *Cambicum*. Sparingly on our river bank and at Feizor.
Draba incana. Abundant on our hills.
 ——— *muralis*. Plentiful about Malham.
Thlaspi alpestre. Very common on our hills.
Cardamine impatiens. Abundant in Crow-nest Wood.
Barbarea præcox. Scarce, in the lane leading to Langcliffe.
Hesperis matronalis. A few plants to be seen occasionally about Settle.
Viola hirta. Very abundant in most of our woods.
 ——— *lutea*, α and β . On all our hills.
Geranium phæum. Very scarce.
 ——— *sylvaticum*. Common.
Sedum Telephium. In Winskill Wood, abundant.
 ——— *villosum*. Common on our moors.
 ——— *reflexum*. On the rocks above Settle.
Saxifraga granulata and *hypnoides*. Very abundant on our hills.
 ——— *oppositifolia*. On the east side of Pennyghent.
 ——— *umbrosa*. In Heselden Gill.
Rhamnus catharticus and *Euonymus europæus*. Abundant in our natural woods.
Hippocrepis comosa. On our limestone cliffs.
Rubus chamaemorus. On Fountains Fell.
 ——— *saxatilis*. Common in our woods.
Potentilla verna. In Kelkhow Wood.
 ——— *alpestris*. Near Peter's Castle, Silverdale.
Dryas octopetala. Covering acres of ground on Arncliffe Cloulder.
Rosa Doniana. In Helk's Wood.
 ——— *Borreri*. Brakenbrow, near Settle.
 ——— *Forsteri*. Sparingly in our hedges.
Ribes alpinum. In Stainforth Wood.
 ——— *petræum*. Limestone rocks above Gordale, and other places.
Epilobium angustifolium. Rocks above Gordale.

- Anthriscus sylvestris*. In our rich meadows.
Silene pratensis, *Pimpinella magna* and *Myrrhis odorata*. Common near Settle.
Galium boreale. Rocks about Gordale.
 ——— *pusillum*. On all our limestone rocks.
 ——— *Mollugo*. Common about Settle.
Senecio sarracenicus. At Ingleton.
Cnicus heterophyllus. Abundant in our boggy woods.
Hieracium murorum, var. *maculatum*. Under Giggleswick Scarr.
Symphytum tuberosum and *officinale*. Both rather scarce.
Lithospermum officinale. On our Limestone cliffs.
Anchusa sempervirens. In several places near Settle.
Polemonium caeruleum. Abundant about Malham and the hills above Settle. The white variety occurs below Weathercoat Cave.
Ligustrum vulgare. Abundant on our limestone cliffs.
Primula elatior. In our woods.
 ——— *farinosa*. In very great profusion in the pastures above Settle.
Mentha rubra. Banks of the river about the Willow Islands.
Daphne Mezereum and *Laureola*. In the woods at Feizor.
Polygonum viviparum. In the pastures about Feizor.
Quercus sessiliflora. Common in our woods.
Juniperus communis. In the alpine woods about Wharfe.
Taxus baccata. On our limestone cliffs.
Listera cordata. On the Rye-loaf hill.
Epipactis latifolia, β . Very abundant under Giggleswick Scarr, &c.
Habenaria albidula. Abundant in Brakenbrow, Brock holes and Tarn field.
Allium oleraceum. On our limestone hills.
Butomus umbellatus. In the river below Settle.
Convallaria Polygonatum. On our limestone cliffs.
 ——— *multiflora*. Near Calton.
 ——— *majalis*. In most of our woods.
Blismus compressus. Abundant about Malham.
Eriophorum polystachion and *angustifolium*. On Cockit Moss.
 ——— *pubescens*. In the Tarn field.
Carex fulva. Abundant in the Tarn field.
 ——— *remota*, *flava*, *binervis* and *pallidula*. Common in various localities near Settle.
Elymus europæus. In Cave-hole Wood.
Phleum pratense, viviparous, two specimens obtained near the bank of the Ribble.
Aira cristata. Very common on our hills.
Melica nutans. Abundant in four localities.
Sesleria caerulea. On all our limestone rocks.
Festuca vivipara. Very abundant on Fountains Fell.
Poa rigida. Under Giggleswick Scarr.
Avena pubescens, *pratensis* and *alpina*. Abundant about Settle.
Polypodium Phegopteris. In Cave-hole wood.
 ——— *calcareum*. Abundant on our hills.
Aspidium rigidum. On the rocks above Settle, at an elevation of 1500 feet.
 ——— *Lonchitis*. Sparingly in the same place.
 ——— *Oreopteris*. Abundant above Swabeck.

Cystea dentata. Very common.

— *angustata*. Scarce, in three places, viz., Gordale and Attermire Scarrs, and Catterick Force.

Asplenium viride, and the ramosa variety, very common.

Grammitis Ceterach. On the rocks above Malham Tarn.

Botrychium Lunaria. Abundant in Tarn-field pasture.

ART. XXXIII. — *Varieties*.

52. *Botany of the Isle of Man*. I am anxious through your pages (for all which, yet published, I heartily thank you) to turn the attention of British botanists to a tract, small indeed in extent, but of much importance in the Geography of British plants, I mean the Isle of Man. Whether the geographical and geological relations of that island oscillate between the three neighbouring countries—England, Scotland and Ireland, as much as we know that it formerly gloried in making its politics do, I shall not stay to enquire, but proceed to the only subject with which ‘The Phytologist’ can have anything to do. It seems to me then that the Isle of Man, lying as it does with relation to England, Scotland and Ireland, should be no bad field in which to look for connecting links between the Floras of those three countries; and one or two hurried excursions made there confirm that belief. It is thirty miles West of St. Bees, the nearest point in England; sixteen miles South of Burran, the nearest in Scotland; and twenty-seven East of Strangford, which is the nearest point of Ireland: so that if mere geography, or at least geographical position, were to guide our conjectures, it would be, *à priori*, a matter of guess more than of reasoning, to which of the three the Isle of Man, in its Flora, would bear most relation. Midway between the very northern part of England and that part of Ireland where its middle parallel of latitude would cross it, and much nearer to Scotland than either, we find, first, two plants decidedly characteristic (I believe) of Ireland and the South of England; and the third and prevailing one equally characteristic of Scotland. The two former are, first, *Pinguicula lusitanica*, still to be found in bogs West of Douglas, and *Adiantum Capillus-Veneris*, formerly growing at Glen Maij, near Peele; while the prevailing fern of the glens throughout the Isle is *Osmunda regalis*, of which I have repeatedly gathered fronds seven and eight feet in length. The little history of *Adiantum Capillus-Veneris* as a Manx plant, is curious, and to me, who love plants for their own sake, vexatious; and illustrates what, I dare say, Mr. Newman and the author whom he quotes in his own account of *Asplenium lanceolatum*, intended by “the ravages of unprincipled botanists,” (*British Ferns*, 66). Some years ago, I think in 1835, I found this graceful fern completely roofing a small cave on the left of the glen below the waterfall at Glen Maij; and sharing with my companion the pleasure of having made this discovery (as I then thought it), I communicated it to a few brother botanists; one of whom, in return for my information, told me that it was no new discovery, for that the station was given in the ‘*Flora Scotica*’ a long while ago; so it was, as I afterwards found, and it was given on the authority of one “*Mr. Clark*.” About two years ago, when on my way home from the county of Kerry, Dr. Wood, of Cork, most obligingly showed me his ample and well-kept herbarium of British plants, where one of the first things I found was “*Adiantum Capillus-Veneris*. Glen Maij, Isle of Man,” with the date of (I think) 1809. This I took as a knock on the head to my

claim, but was glad of it still, as establishing the plant's true nativity. But now for the catastrophe: when I revisited the Glen last year for the pleasure, chiefly, of seeing this fern, I found my friends had loved it to death;—it was gone!—gone so completely that I thought I had mistaken the cave, and looked about for some other; but when I came back to look at least at the spot where I *had* seen it grow, I discovered a morsel of a frond yet clinging on: this I carefully carried home, and planted under a closed glass, where it is now growing and spreading most vigorously, but in the Isle of Man I fear it grows no more. I have one or two notices yet to offer on the plants which are found, and of some which are *not* found, in the Isle of Man: but must for the present postpone them. — *F. F. Clark; Hartshill, near Newcastle, Staffordshire, August 21, 1841.*

53. *Hymenophyllum Wilsoni* has been found here this summer, on the Old Man, where it grows on wet rocks, hidden from sight by the luxuriant growth of *Cryptogramma crispa*. In many such situations it is found, but not in great abundance. In one other situation we have found it at a comparatively low elevation, on a large moss-covered stone, standing in, but not overflowed by, a mountain stream. — *M. Beever; Coniston, near Ambleside, Sept. 20, 1841.*

54. *Lycopodium Selaginoides*. In the course of the summer I have found *Lycopodium Selaginoides* in almost all our boggy ground, generally growing in *Sphagnum*.—*Id.*

55. *Lycopodium clavatum*. One plant only grows in a field near the lake, the surface of which is peat and below it gravel. The part in which this plant grows has had the grass removed, and appears to have been burned. It was observed about two months since: there has been no appearance of fructification. The field, which is a large one, has been well looked over, but no other plant has been found.—*Id.*

56. *Lastræa rigida*. I have much pleasure in giving you an opportunity to record in the pages of your interesting periodical a Westmoreland habitat of *Lastræa rigida*, whence I supplied myself for the first time on the 15th of July, 1840. I believe the station had been known to a gentleman resident in the neighbourhood for many years, but he kept his secret close, lest the exterminating searcher should remove all traces of his valuable discovery. My knowledge of the fern arose from Miss Beever, who, in 1839, sent a few fronds for my opinion, stating her belief that they were *Lastræa rigida*, which belief Mr. Francis, to whom specimens had also been sent, fully confirmed. The fern grows sparingly on the side of a road leading from Morecambe Bay to Arnside, on the very confines of Westmoreland, and in very great abundance on the southern face of Arnside Knot, a limestone hill which rises northward from that road. Phoenix-like, it springs from the ashes of its parent, without any apparent access to nourishment but what it may receive from the decayed fronds of the preceding year, by which it is surrounded. Its tufts are very dense, each consisting of many hundred fronds, so that I cannot entertain the least fear that it should ever be eradicated. I may remark that, from its less elevated site than near Settle, hitherto the chief source, through Mr. Tatham, of supply to the botanical world, its fructification is more often perfected, and the character of the plant is more fully developed, in the Westmoreland than in the Yorkshire habitat. Nor can I avoid noticing how completely the Arnside plant stamps the correctness of the figure given in Mr. Newman's elegant and valuable History of Ferns. This may have been noticed by those who have received specimens from the Botanical Societies of either London or Edinburgh, to both which I sent several the past year and furnish more the present one.—*Samuel Simpson; Lancaster, September 29, 1841.*

57. *Gentiana Pneumonanthe with white flowers.* I send herewith a white-flowered specimen of *Gentiana Pneumonanthe*. It was gathered on the 5th of August last, at Poulton-le-Sands, near Lancaster, in the same place as that from which I stored myself in July last year, but where, I fear, ere next summer, the plough will have destroyed the hoard. The plant grew among whins, confined to an area of a very few feet, in the centre of an uncultivated piece of ground. Out of sixty specimens gathered by me this year, about twelve were white; and perhaps the white were in the same proportion to the blue ones last year, but I did not take particular notice. Their appearance in the bright sunshine was most exquisite.—*Id.*

58. *Polygonum dumetorum* grows copiously in the hedges on more than one part of the road from the Woking-Common station to Guildford.—*J. S. Mill; Kensington, October 3, 1841.*

[This is one of those odd plants which we can never expect to find in the same spot two years in succession. At least such is the case so far as we are taught by our observation of its habits in the neighbourhood of Reigate. Previously to the year 1836, when we had the good fortune to detect it, *Polygonum dumetorum* was not known as a Reigate plant; in the following year it was found in one or two other stations; from one at least of these it has entirely disappeared, but to make amends has sprung up in the greatest abundance in a locality some miles from either of those previously occupied by it. We are always glad to record the stations of such plants, wherever they may choose temporarily to take up their residence.—*Ed.*]

59. *Rarer Plants of the Isle of Wight.* I observed the following less common plants in the Isle of Wight, during a week's tour in July, some years ago.

MARITIME PLANTS.

Matthiola, (no doubt) incana, or Cheiranthus incanus, in inaccessible places on Compton Cliffs, Freshwater Bay. The same plant grows most abundantly in places overhanging the sea on the promontory of Posilipo, and other similar situations near Naples, where it flowers copiously in February, and little children collect bouquets of the plant at great apparent risk, to sell to passers by.	Cakile maritima Adenarium (Arenaria) peploides Pyrethrum maritimum (Ryde) Convolvulus Soldanella (sands near Yarmouth) Salsola Kali (Ryde) Atriplex littoralis Beta maritima Euphorbia Peplis (Sandown Bay) Arundo arenaria Triticum Nardus
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SALT MARSHES NEAR YARMOUTH.

Althæa officinalis	Salicornia herbacea
Tamarix gallica	Chenopodium maritimum

IN A MARITIME BOG AT EASTON, NEAR FRESHWATER.

Ranunculus lingua	Scirpus maritimus
Epipactis palustris	Cladium Mariscus

MISCELLANEOUS.

Poa bulbosa. Alum Bay.

Mentha rotundifolia. This plant, so common on the continent, but comparatively so unfrequent in England, grows on the Undercliff, in a maritime situation, near Puckaster Cove.

Lathyrus sylvestris and *Rubia peregrina.* Common in hedges on the Undercliff. The former grows in profusion on the landslip near Bonchurch.

Iris foetidissima. As common on the Undercliff, and (if I recollect right) in other parts of the island as in Devonshire.

Inula Helenium. By the side of a lane between Yarmouth and Freshwater Bay, but sparingly.

PLANTS COLLECTED SHORTLY AFTERWARDS ON THE COAST OF HAMPSHIRE, OPPOSITE
TO THE ISLE OF WIGHT.

Atriplex portulacoides. Abundant in salt marshes at Lymington.

Bartsia viscosa and *Fumaria capreolata*. Roadside between Lymington and Exbury.

Euphòrbia stricta. Cornfields near Beaulieu river.

Campanula hederacea. New Forest, near Ashurst Lodge.

Parnassia palustris, *Drosera longifolia* and *Myrica Gale*. In various parts of the Forest.—*J. S. Mill*.

60. *Lathræa squamaria*. I once obtained a very expressive example of the parasitical property of *Lathræa*. It was attached to a small branch of the root of a poplar, which was closely surrounded by the thick branched roots of the *Lathræa*, whose tuberous suckers penetrated the root of the poplar. The example figured by Mr. Bowman in the Linnean Transactions, is evidently derived from a young plant. In mine the suckers by which the root of the *Lathræa* attached itself, were numerous seated upon its principal divisions, not at the termination of the lesser branches merely, but wherever a point of contact between the parasite and its prey existed, there were to be found the suckers.—*W. Wilson ; Warrington, October 6, 1841.*

61. *Sium nodiflorum*. I beg to forward a specimen of *Sium nodiflorum* with a remarkably long flower-stalk. The umbels of this species are commonly said to be sessile, but in this neighbourhood at least, absolute sessility is rare. — *Geo. Sparkes ; Bromley, Kent, October 11, 1841.*

[The umbels of *Sium nodiflorum* are rarely, we believe, quite sessile, and we have observed the peduncle to vary much in length ; in the specimen sent by our correspondent it is about as long as the umbel. The specimen appears to be a portion of a very luxuriant plant.—*Ed.*]

62. *Anagallis cærulea*. With respect to the query at p. 76 of 'The Phytologist,' I may observe that I never found but one plant of *Anagallis cærulea* near Bromley, and that I have in vain searched the same field for two successive years without finding another. I once met with a solitary plant at Leamington in Warwickshire. The blue in this instance had a distinct shade of violet.—*Id.*

63. *Curious Fern*. Enclosed are specimens of what I consider a very curious variety of *Athyrium Filix-femina*. The original plant was found in the county of Galway, Ireland, by a Mr. Smith, brother I believe to Mr. Smith, curator to the Hull Botanic Garden, where I noticed a vigorous specimen in the course of last summer. During the last two years I have had many opportunities of observing the plant in cultivation, in which state its form appears constant, although grown in a variety of soils and situations. From the great irregularity in the lacination of the pinnæ I have experienced considerable difficulty in determining its venation, which however appears to agree with that of the normal state of the lady-fern. I have minutely examined a great number of fronds, but can discover no traces of fructification. In the herbarium of a friend I have seen specimens of an unusual form of *A. Filix-femina* collected in Staffordshire, which agree with the one under consideration in the irregularity of size and cutting of the pinnulæ, but are without any division or branching of the rachis ; they likewise agree in the dwarfish habit and permanent barrenness of the fronds.

The plant grows readily, increasing its roots and putting out fresh fronds much in the manner of shoots, without having any well-defined rhizoma. Finding no allusion to this variety in your valuable 'History of British Ferns,' or in the 'Notes on Irish Natural History,' I have been induced, in the spirit of enquiry, to place these specimens and notes entirely at your disposal, in order that the variety may be assigned to whatever species it may belong, through the medium of 'The Phytologist,' to which, and its promising contemporary 'The Entomologist,' I wish enduring success.—*John Hardy*; * 52, Trippet Lane, Sheffield, October 11, 1841.

[The singular fronds accompanying this obliging letter, evidently partake in some degree of a monstrous or unnatural character, the rachis being often dichotomous and irregularly branched, and the pinnulæ invariably barren. The venation, although uncertain and affording no positively tangible character, evinces a nearer approach to that of *Cystopteris fragilis* than to any other of our ferns, the veins in the pinnulæ being alternately branched; the size also of the fronds, which do not exceed seven inches in length, and the decurrent pinnulæ attached throughout to the midrib of the pinna, favour this conclusion, as these characters occur not uncommonly in some of the forms of that pretty species.—*E. N.*]

64. *Description of a metamorphosed variety of Polytrichum commune.* On examining some specimens of mosses received a few days ago from Roborough, Devon, my attention was drawn to a remarkable accidental variety of *Polytrichum commune*, which exhibited the union of two calyptræ, forming a very beautiful illustration of the power of cohesion of two distinct bodies, under favourable circumstances, possessed by the vegetable kingdom, and so commonly represented by united leaves, stems, flower-stalks, &c. The description of the specimen is as follows. *Stem* about three inches high, branched, producing two terminal setæ: *perichætia* distinct: *calyptræ* closely adhering by their hairy covers: *leaves* patent, linear-subulate, the margins not involute, serrated; keel serrated at the tip. The specimen in question is remarkable for its manner of growth, it having two setæ from the apex of the stem, each surrounded by a distinct perichætium; the calyptræ also are united by their hairy covers, thus forming a two-celled calyptra:—the origin of which appears to have been in the development of two setæ from the same axis, and the consequent proximity, and most probably the pressure together, of the outer coverings of the calyptræ, which would cause them to adhere while in a young state, and being thus carried upwards by the elongation of the setæ, formed the monstrosity in question. The above was read before the Botanical Society of London, on the 4th of September, 1840; I have since received similar specimens from G. B. Johns, Esq. found by him on an old wall on the banks of the river Walkham, near Walkhampton, Devon, growing plentifully. There is also in the herbarium of the Bot. Soc. Lond. a specimen of *P. juniperinum*, collected by Mr. W. Gardiner, jun. of Dundee, at Hare Craigs, near Broughton, exhibiting a similar monstrosity in that species.—*Thomas Sanson*; 2, Cloudesley St., Islington, October 13, 1841.

65. *Lycopodium Selago* detected in Tilgate Forest, Sussex. I was very much pleased last week on visiting Tilgate Forest, to find *Lycopodium Selago* growing plentifully on the banks of the pond below the bog between Pease-pottage gate and Starve-mouse plain. *L. Selago*, *inundatum* and *clavatum* were all growing in abundance within the space of twenty yards. *Exacum filiforme* was growing abundantly in the bog, and in great perfection.—*J. A. Brewer*; Reigate, October 14, 1841.

* In a letter to E. Newman.

66. *Tragopogon pratensis*. I have not the slightest doubt that the *Tragopogon* noticed by Messrs. Irvine and Pamplin at Cobham (Phyt. 36), is the true *T. pratensis* of Linnæus and Smith, (Eng. Bot. t. 434). It is far from being a common plant in England, indeed the only specimens that I have seen are from Sussex (Framfield) and Suffolk, (St. Peters, Southelmham); and it appears to be totally unknown to the majority of English botanists. The more common *Tragopogon* is, I think, as certainly the *T. minor* of Fries, as was pointed out several years since by Mr. Leighton.—*C. C. Babington*; *St. John's College, Cambridge, Oct. 16, 1841.*

67. *Polypodium Dryopteris and calcareum*. I am much pleased with 'The Phytologist,' which promises to be a very useful medium for exchanging information on botanical subjects; and as you seem to adopt the scrap-book motto, viz. "the smallest contribution thankfully received," I may venture to add a mite. You find Mr. Wilson's opinion coincides with mine, as to the distinctness of the two *Polypodia*—*Dryopteris* and *calcareum*. The pubescence, which is one distinguishing character of *P. calcareum*, is a beautiful microscopic object, each slender stem supporting a globular head, but this pubescence soon dries, so that only on freshly gathered specimens can it be fully perceived or accurately examined. Though we found *P. Dryopteris* frequently in Wales, we never met with *P. calcareum* there; and though, like Mr. Wilson, we have cultivated them side by side for years, we can also testify that their respective characters remain unchanged.—*Meta Riley*; *Papplewick, near Nottingham, October 16, 1841.*

68. *Monotropa Hypopitys*. In a note from Dr. Balfour he informs me that he found this plant in August last, in Oak woods, near Cawdor Castle, Nairnshire. I believe this to be the first authentic record of a Scottish habitat.—*Edward Newman.*

69. *Silene nutans*, (Phytol. p. 78). Will your correspondent be good enough to say if the plant grew on or about the Castle previous to the burning? Or are we to regard the circumstance he mentions as a curious parallel to that spoken of by Morison (Dialogus inter Socium &c., p. 495), respecting the sudden appearance of *Sisymbrium Irio* on the ruins of London, after the great fire of 1666?—*L. H. Grindon*; *Manchester, October 20, 1841.*

70. *Quinate Ænothera*. I have been much interested this autumn by finding numerous flowers on a plant of *Ænothera grandiflora* in my garden, possessed of five sepals, five petals, ten stamens and five to ten stigmas, while the remainder of the flowers on the same individual presented the usual quaternary arrangement of their parts. This may have been observed before, but as it is an interesting fact in Phytology, I send it you for publication if you think proper.—*Id.*

71. *Substitution of Leaves for Petals in a Dahlia*. While upon this subject, I may mention that a *Dahlia* of mine has this autumn presented the curious substitute of green leaves for petals; the whole of the "flower" being composed of thick, fleshy expansions, arranged in an imbricate form, and springing, not from a common receptacle, but in regular verticils on the terminating half-inch or so of the peduncle. A more beautiful illustration of the doctrine of Morphology I have seldom seen.—*Id.*

72. In the *Gardeners' Chronicle* for September 25, 1841, we observe the following correction of an error which appeared in a preceding No., and was copied by us into 'The Phytologist,' p. 80. "*Spurless variety of Dog Violet.*—In our notice of this at p. 599, we unfortunately ascribed its discovery to Mrs. Gye—it should have been Miss Gage." We did not see this until too late for inserting it in our last.—*Ed.*

73. *Eriophorum alpinum*. We are glad to see from a notice in the *Gardeners'*

Chronicle, p. 662, that this pretty little plant "has been re-discovered in a new situation, about two miles from Dumlanrig Castle." We suspect that this should be Drumlanrig, in Dumfriesshire; if so it is about 90 miles South of the "bog of Restenat, near Forfar," hitherto the only authentic British station for this species, but where for many years it has not been found, in consequence of the bog having been drained. In preparing for publication the second edition of 'English Botany,' it is a pity that the figure of the young *Carex dioica* should not have been erased from the otherwise characteristic portrait of this *Eriophorum*, (E. B. 311, and t. 71 of the new edition); at all events we think it ought to have been mentioned in the text, for it is obvious that the figure as it now appears, must mislead those who have not seen the plant itself, unless they have access to Smith's 'English Flora,' where alone, we believe, has the error been noticed.—*Ed.*

74. *Death of M. De Candolle.* Our readers will doubtless have seen numerous notices of the decease of this eminent botanist, which took place at Geneva on the 9th of September; we nevertheless deem it our duty to record an event in which all botanists must feel deeply interested. Seven volumes of M. De Candolle's great work, the 'Prodromus Systematis Regni Vegetabilis,' have already appeared, wherein are described the whole of the Thalamifloræ and Calycifloræ. We may conclude by trusting, with a contemporary, that the eighth volume of the Prodromus "is in so advanced state as to enable his relatives to publish it; but after that, however much there may be to hope, there is more to fear."—*Ed.*

75. *Illustrated Catalogue of British Plants, arranged according to the Natural Orders.* We are glad to see a work bearing the above title announced by Mr. C. E. Sowerby. It is to be published in monthly numbers, each containing 8 plates, or 48 coloured figures, with letterpress.—*Ed.*

ART. XXXIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 1.—Hewett C. Watson, Esq. F.L.S., vice-president, in the chair. Mr. Baxter, of the Botanic Garden, Oxford, exhibited specimens of *Blechnum boreale*, collected by Miss Mary Beever, in which the margins of the pinnæ were crenate. Mr. B. D. Wardale exhibited specimens of *Carex binervis* and *distans*, and other interesting plants. Mr. Watson exhibited specimens of the following plants:—

1. *Mimulus luteus*, found by him apparently wild and growing abundantly in marshy ground along the north side of the Tay, from half a mile to a mile below Perth; and also from a rill by the roadside, in front of Daenacardock Inn, forest of Athol, Perthshire.

2. A land variety of *Callitriche pedunculata*, from Mr. W.'s garden, supposed to have originally come from Esher Common, and inadvertently made in the fourth edition of Hooker's 'British Flora' a variety of *C. autumnalis* instead of *C. pedunculata*, a species with which it perfectly agrees in the elongated peduncle and keeled fruit, the latter being only half the size of the fruit of *C. autumnalis*.

3. A series of five specimens of *Festuca pratensis* and *lohiacea*, showing the intermediate states of the supposed two species. The first was the common form of *F. loliacea* of British authors, bearing eleven nearly sessile spikelets disposed alternately along the common stalk or rachis, so as to constitute a simple spike or raceme. The second differed by having the peduncles of the spikelets slightly longer, and two of them divided. The third, still a spiked raceme of *Festuca loliacea*, but in the place of the two lower spikelets there were two branches bearing respectively four and six nearly sessile spikelets. In the fourth the form of the panicle was more developed, there being seven principal branches bearing from two to five spikelets each, on very short stalks. In the fifth the spikelets were more decidedly stalked and disposed into a panicle, which had the ordinary appearance of that of *Festuca pratensis* in luxuriant growth. All five specimens

were gathered by the Thames, shortly above the Lock at East Moulsey, the racemose inflorescence distinguishing the specimens which had grown nearer the towing path, where the ground was more dry and stony.

4. *Cnicus pratensis* and *Forsteri*. A series of specimens designed to show that branched plants of *C. pratensis* are referred by botanical authorities to *C. Forsteri*, and that possibly all specimens of *C. Forsteri* are luxuriantly developed plants of *C. pratensis*. Four specimens of *C. pratensis* were exhibited in its usual state, each having a solitary flower and from one to three crenate leaves on the stem. A fifth differed from these in having two flowers and six leaves on its stem. A sixth specimen from Sir W. J. Hooker, and labelled "C. Forsteri, Weybridge," had also a two-flowered stem, the lower portion of which was absent, but it was accompanied by a leaf somewhat pinnatifid instead of crenate at the edges. Two other specimens, gathered near Whitmoor Pond, Surrey, in June last, presented a still wider variation from the ordinary form of *C. pratensis*, and would be called *C. Forsteri* by most botanists: the stems bore respectively two and four flowers, and eight and ten pinnatifid leaves. Only a single plant had been found by Mr. W., but having six separate stems from the same root, mostly with two or three flowers each. The last specimen exhibited was one that had been collected by Mr. Coleman near East Grinstead. This one differed from the Whitmoor plant in having its leaves more divided and a branched stem bearing eleven flowers, together with the broken peduncles of two or three others. Mr. C.'s specimens closely corresponded with the specimens of *C. Forsteri* preserved in Smith's herbarium, and is doubtless the true plant. In the absence of the intermediate specimens it would have appeared to be very distinct from *C. pratensis*, but the transition is so strongly established throughout the other specimens as to render it difficult to say where the one alleged species ends and the other commences. Mr. Watson states the transition is still further aided by a foreign specimen in Smith's herbarium, labelled "*Carduus dissectus*, (Vill.)," and which has only one flower though many leaves on a stem. Between the Weybridge *C. Forsteri*, as named by Sir W. J. Hooker, and the two-flowered specimens of *C. pratensis*, there was scarcely a perceptible difference, except in the one pinnatifid leaf of the former and the slightly crenate leaves of the latter; but to counterbalance this difference in foliage Mr. Watson produced two leaves gathered that day from the same plant in his garden, one of which was simply crenate, while the other was pinnatifid; the plant from which they were plucked being an undoubted *C. pratensis*.

5. *Juncus lampocarpus* and *nigritellus*. A series of specimens to show that *J. nigritellus* of English botanists is identical with *J. lampocarpus*, unless in some cases where small specimens of *J. acutiflorus* pass under the same name. Mr. Watson believed that *J. nigritellus* might originate in two ways from *J. lampocarpus*: occasionally small feeble plants of the latter, with very few clusters of flowers, are named *J. nigritellus*, but perhaps more usually this alleged species is represented by detached shoots or branches of *J. lampocarpus*, produced by the flower-stalk being trodden down by cattle or laid prostrate by wet weather; various changes are thus made in its inflorescence; one of the variations being seen in the production of roots at the joints of the stem, and the shooting up of secondary branches, terminated by a few clusters of flowers. As the old stem decays, these branches, being rooted at the base, become distinct plants and are gathered as *J. nigritellus*, as was shown by specimens on the table. It was Mr. Watson's opinion that several of our alleged species are in fact only extreme forms of some one or two other species. In speaking of *one* alleged species being the extreme forms of *two* other species, he meant that the varieties of the two might be so much alike as to be combined into a third supposed species by those botanical writers who describe plants from dried specimens, and also do not supply their herbaria with series of specimens sufficient to illustrate the range of variation for each species.

A letter was read from Mr. James Rich, of Mahon, giving an account of a botanical excursion made by him to Majorca. Mr. R. having left Mahon in the latter part of April, reached Palma after a sail of four days, from whence he proceeded to Valldemosa, about eight miles distant, which Mr. R. remarks is "a place of extreme beauty amongst the mountains; in some places the rocks rise to an immense height, almost perpendicularly from the road, with their grey-looking solitary peaks generally buried in clouds. At their bases the luxuriance of the vegetation is unmatchable, but as you look higher up you see nothing but a stunted oak or a pine (*Quercus Ilex* and *Pinus halepensis*), growing as it were out of the solid rock." The following plants are a portion of those collected by Mr. R. for the Society's collection, viz.—*Punica granatum*, *Asphodelus ramosus* and *fistulosus*, *Lonicera inflexa*, *Iris sisyrinchium*, *Hypericum Balearicum*, *Delphinium staphysagria*, *Ceterach officinarum*, *Sedum alpinum*, *Salvia clandestina*, *Origanum majoricum*, *Thymus filiformis*, *Verbascum sinuatum*, and a number of others which, although common to England, are exceedingly interesting in a geographical point of view. Mr. R.'s next journey was to Soller, about fifteen miles distant from Palma, and three miles from the sea, the details of which he has promised to give in his next letter, and concludes the present with a list of species added to his former collection, amongst which we observed *Althæa hirsuta*, *Lavendula spicata* and *dentata*, *Bellis annua*, *Tragacanthus poterium*, *Hedysarum spinosissimum*, *Psoralea bituminosa*, *Cytisus spinosa* and *argenteus*, *Anchusa angustifolia*, and *Anagallis phænicea*; most of which were collected on the road from Valldemosa to Soller, near the base of the mountains, some of which rise to an altitude of near 5000 feet above the sea.—*T. S.*

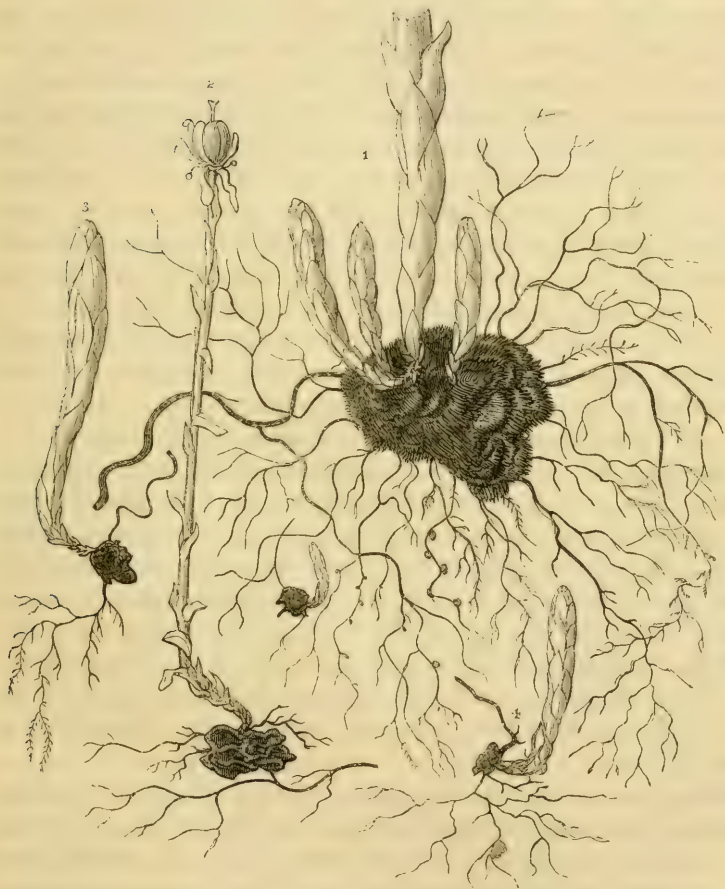
THE PHYTOLOGIST.

No. VII.

DECEMBER, MDCCCXLI.

PRICE 6D.

ART. XXXV.— *On the parasitic growth of Monotropa Hypopitys.*
By EDWIN LEES, Esq., F.L.S., &c.



ILLUSTRATIONS OF THE MODE OF GROWTH OF *MONOTROPA HYPOPITYS*.

1. Base of a mature plant, 14 inches high, and three young unexpanded plants, growing from their radical parasitical knob. 2. Smaller plant in seed. 3, 4 & 5. Young plants growing from radical knobs.

HAVING engaged to accompany my friend Mr. Buckman, of Cheltenham, in a botanical exploration of the Cotswold Hills, in the second week of September last, we found ourselves on the evening of the third day at the base of the precipice of Cleeve Cloud, on our return. We had just emerged from a rocky wood, where we had been fortunate enough to find *Rubus saxatilis* in fine fruit, *Convallaria Polygonatum*, also in fruit, and some other rarities; and were about at once to turn our steps homeward, when I noticed a thick beech-wood about two miles farther on, and proposed advancing to it. My friend, who had been on his legs ever since the early morn, for we had travelled far and long, rather quailed at this proposition, urging the necessity of recruiting the outer man before undertaking further enterprizes, but yielded the point on my suggesting to him that we might possibly find *Monotropa Hypopitys*, although he said he had never heard of its growing there. On arriving at our ground we scaled a stone wall, and entered such a "twilight grove" as I have seldom seen. It formed indeed a tent of the densest foliage, consisting almost exclusively of beeches; and as evening was rapidly approaching, was really so dark that we could scarcely at first see our way to find anything.

After a little inspection my friend showed me several fine specimens of *Epipactis grandiflora*, which only redoubled my anxiety to find the *Monotropa*, but we searched for some time in vain. At last we detected a stunted specimen, then several others, and finally, where a tree had been felled, there was a luxuriant growth of thirty or forty all together. I deemed this a favourable opportunity to ascertain, if possible, whether *Monotropa* were really parasitical, as suggested by Mr. Luxford, (*Phytol.* 43). Mr. L. states that he could not satisfy himself on this point; and indeed Sir James Smith remarks in his 'English Flora,' that he "could never find it truly parasitical, any more than Mr. Graves, though the uniform pallid hue of the plant indicates it to be so."* I was accordingly careful to get up several roots deep enough from among the dead fungoid mass of beech-leaves that thickly matted the ground.

On commencing my investigation at home, I found considerable difficulty in removing the matted mass of soil around the base of my plants; and in attempting to trace the connection of the tapering base of the succulent stem therewith, in spite of all my care, several stems broke off, and I was foiled in my efforts, although I found the fibres of the beech-roots inextricably connected with this compact brown

* 'English Flora,' ii. 250.

lump, (see fig. 1). Looking carefully, however, over the mass of roots and soil I had brought away, I observed numerous young plants which seemed to promise greater facilities in the examination. These I accordingly worked at very patiently, but still, at the base of each appeared what to the naked eye seemed hard granules of soil mixed up with hairy radical fibres of beech. Expecting that maceration in water would remove this hard matter and expose the roots of the *Monotropa*, I steeped them in water; but to my surprise they remained as hard and intractable as before. On applying a lens to solve this mystery, it became fully evident that these hard hairy knobs were in fact parasitical nidi attached to the roots of the beech, and deriving their sustenance from them. Having now obtained a clew, I found that the hairy knobs on the beech-roots were of all sizes, from that of a pea, from which the little embryo *Monotropa* was sprouting, to that of a crab, nourishing a full company of several plants, (see the figures).* These parasitical knobs, which constitute the nidi from which the *Monotropa* springs, are formed on the extreme radical fibres of the beech, but I was able to trace their connection with the thicker roots, and they were evidently composed of the swollen fibres agglomerated together, and so covered with a brown hirsuture, that to the eye they looked like lumps of compact soil. The larger knobs had the same aspect when examined with a lens, so that they, no doubt, increase in size every year, as additional sustenance is required by the multiplying plants; for when a single plant has once established itself on its parasitical attachment, numerous offsets soon arise from the parent plant, (see fig. 1). At the same time, as the juices are concentrated in the knob, and it increases in size, so do the fibres about it ramify in complexity on all sides, and send forth their spongioles in every direction, so that the parasitic mass, like the mistletoe, always has an abundant magazine at command. These hairy parasitical nidi appear to me most analogous to the moss-balls formed by the *Cynips Rosæ* on roses and sweet-briars, except that while the latter, being formed for the nourishment and habitation of insects, only endure for a season, the former are perennial.

I have shown, I think satisfactorily, that the hairy vesicular knobs that I have discovered, are seated on, and of necessity nourished by, the radical fibres of the beech, connected as these are with the ramifications of larger roots. As the *Monotropa* springs from and derives its nourishment through the medium of these nidi, which increase in

* I observed, also, many very minute nodules on the beech-roots, where the embryo plant was as yet not apparent.

size with the growth of the plant, it is proved to be a true parasite. The figures will show the connection of the knobs and radical fibres perhaps better than can be explained by words.

I scarcely wonder that any one should consider *Monotropa* to be non-parasitical, for it requires the utmost care and patience in the examination; and it is only after much attention that I have arrived at the persuasion that it is really a parasite. The full-grown plant is naturally examined by all who have the opportunity, but here the attempt to trace the connection between its stem and the roots of the beech, is rendered so difficult, if not impossible, by the impermeable mass of fibres, mould, and fleshy clusters* that appear, that it becomes no easy matter to untie the truly Gordian knot. Added to which the stem of the *Monotropa* tapers down to so narrow a junction with its root, that it generally breaks off in the examination. Besides, the whole mass is obscured with a hirsuture that appears like a byssoid fungus. These hairy fibres, however, appear to me to be really part of the economy of the plant, imbibing nutriment from the rootlets of the beech, to which they are closely applied, and conveying it to the succulent radicles of the *Monotropa*, with which they are also connected. In proof of this I find these hairy fibres closely applied to the swollen rootlets in the smallest plants that I have been able to find. As I before stated, therefore, I perceived it expedient to hunt for young unexpanded plants, their connection with the roots of the beech being more readily observable than in matured flowering ones, from the cause previously mentioned. In every case the only clear way to observe the connection of the roots of the beech with those of the *Monotropa*, is to steep the hirsute knob at the root of the latter in water, after clearing away as much of the mould as possible, and then placing the moistened mass on paper, carefully examine it with a magnifier. The fleshy roots of the *Monotropa* will then appear as if covered with a varnish, inextricably mixed up with the beech rootlets, which in various places appear *swollen* at their junction with the parasite, while a close examination shows ultimate hairy fibres fixing the roots of the *Monotropa* to the rootlets of the beech, and seeming to absorb nutriment from the alburnum of the latter. The rootlets thus circumstanced are evidently in a living state, vigorous, and sending forth their minute spongioles in all directions.

The question still remains for elucidation, as to how the seed of the

* The fleshy clustered radicles of the *Monotropa* bear a considerable resemblance to the "densely aggregated fleshy fibres" which form the root of *Listera Nidus-Avis*. They are as succulent, but still more crowded and brittle than in the latter plant.

Monotropa establishes itself upon the rootlets of the beech, and by what process the hirsute knobs from which it derives its nourishment are formed. The seed must exercise some power in concentrating the juices of the rootlet about it, and in forming this magazine of nutriment, which may be analogous to that performed by the liquid which the *Cynips* deposits with its egg in the plant or tree frequented by it, producing those curious galls so common on the oak and other vegetables. It may also be questionable how long the *Monotropa* requires to arrive at maturity after the seed has fallen, for I would not be too certain that the young plants I met with were seedlings of last year, though it is probable they are so. When once established, numerous offsets are thrown off from the perennial nidus. *Monotropa Hypopitys* varies much in size and luxuriance, some specimens with a single flower being only three inches high, while others occur above a foot in height, with a cluster of seven or eight flowers. The strong primrose-like scent exhaling from it is very remarkable and characteristic.

The seeds are peculiar, and as the valves of the capsule open, they appear pressing out at the interstices like a host of very minute worms. Smith describes them as "very numerous, minute, oval, each enveloped in a membranous reticulated *tunic*, greatly elongated at both ends." In fact their structure is scarcely discernable with the naked eye from their minuteness, but when examined through a lens, they appear like very minute globules of gum, screwed up in a white elongated envelope, and thus simulating the aspect of extremely small worms. They are so adhesive to anything they come in contact with, that even when accidentally dropping on the smooth surface of the finger-nail, they cannot be shaken off. This shows how easily the seeds may affix themselves to the roots of the beech under which they grow, whose radicles, more almost than those of any other tree, approach the surface of the earth, and so occupy the ground that scarcely any other plants, besides mosses and fungi, can flourish beneath its shade.

Malvern Wells, Sept. 28, 1841.

EDWIN LEES.

ART. XXXVI. — *Three Days on the Yorkshire Moors.*

By RICHARD SPRUCE, Esq.

THE excursion detailed in the following pages was undertaken, in company with a botanical friend (Mr. Ibbotson of Ganthorpe), principally with the view of exploring Whitston-cliffe, on the western edge of the oolitic hills, and the Hole of Horcum, on the high moors between Pickering and Whitby.

We left Ganthorpe, a small village about a mile and a half West of Castle-How-

ard, at 9 o'clock in the morning of Tuesday, June 29th, 1841; a walk of a mile brought us to Terrington, a noted locality for *Sedum dasyphyllum*, which we observed on an old wall. On Colton Moor, three miles farther on, we first observed *Digitalis purpurea*; and throughout the rest of our journey we never went far without seeing it in greater or less quantity: here too we noticed the pretty *Antennaria dioica*. From Colton to Gilling the distance is three miles; between the last-named place and Ampleforth College we saw *Carex intermedia*; and in ascending the steep hill to Ampleforth Mill, we gathered a few plants of *Geranium columbinum*. On Ampleforth Moor we found *Empetrum nigrum* and *Lycopodium clavatum*, plants which occur abundantly on all the high moors, besides a few plants of *Aspidium Oreopteris*. Having passed Ampleforth Moor we came upon Wass Moor, and were busily employed in hunting for *Lycopodium alpinum*, which is said to grow there, when we were driven from our ground by a tremendous thunder-storm, and after various stoppages reached the Hambleton Hotel, $16\frac{1}{4}$ miles from our place of starting, at 5 o'clock P.M., amidst a heavy fall of rain. Our plans were now totally disconcerted, for we had anticipated spending the greater part of the afternoon and evening at Whitstoncliffe; we however started again about 6 o'clock, and in twenty minutes reached the brow of Whitstoncliffe, having in our way observed *Listera cordata*, *Air verna* [?] and *Lycopodium Selago*. Here the view was most magnificent; we stood on the highest part of an almost perpendicular range of cliffs, extending in the form of a crescent, at an elevation of 1,178 feet above the level of the sea. At our feet lay Gormire, a remarkable lake about a mile in circumference, but appearing to us scarcely larger than a duck-pond; beyond extended a vast plain, a continuation of the vale of York, on which we distinguished Thirsk, distant about five miles, and several other towns; farther still were lofty hills, conspicuous among which was Penhill, at the entrance of the romantic valley of Wensley dale. We now commenced descending the hill—no trifling task, and in our way down gathered fine specimens of *Avena pratensis* (frequent on the coralline oolite of Yorkshire, and also on the magnesian limestone), *Air cristata*, *Neckera crispa*, *Jungermannia Tamarisci* and *Sphærophoron coralloides*. At Gormire we collected *Pilularia globulifera*, and *Potamogeton heterophyllus* without floating leaves, and noticed *Menyanthes trifoliata*. If the descent had been difficult, much more fatiguing and dangerous was it to ascend, as we did at the steepest part where an ascent was at all practicable. On our toilsome journey we collected *Arabis hirsuta*, *Geranium lucidum*, *Aspidium aculeatum*, *Cystopteris fragilis*, *Asplenium Trichomanes*, *Tortula tortuosa* and *Jungermannia platyphylla*. We had not reached the summit of the cliff when we were again overtaken by a heavy shower, and having clambered up as speedily as possible, we sat down under an old wall with an umbrella spread over us. And here we saw a sight that can be seldom witnessed; a beautiful rainbow extended over our heads to the opposite extremity of the crescent, whence it was continued downwards into the vale below, and, had it not been for the small space immediately underneath us, would have formed a perfect circle. After spending little more than two hours at Whitstoncliffe, for the satisfactory exploration of which as many days would be required, we made the best of our way to the hotel.

We were detained at the hotel by rain until 9 o'clock the following day, June 30th, when we again started and walked across Hambleton to Scawton, $2\frac{1}{4}$ miles, and in our way gathered *Poa compressa* and *Orthotrichum Hutchinsiae* on an old wall; passing the village we descended into a deep glen called "the Howle," where we spent a considerable time very usefully. The most conspicuous object here was the elegant

Polypodium Phegopteris, which grew in the greatest profusion on the rocks bounding the narrow valley; besides laying in a stock of this, we gathered *Dicranum pellucidum*, *Hookeria lucens*, *Hypnum palustre*, *Jungermannia asplenioides*, *Jung. furcata* var. β , *elongata*, *Peltidea horizontalis* and *canina*, — all beautifully in fructification.

Leaving Scawton Howle we next directed our course to Rievaulx, 3 miles. Nothing particular met our view (save *Verbascum Thapsus* growing in the rocky places) until we came to a boggy mead within a short distance of Rievaulx, where we gathered fine specimens of *Primula farinosa*, *Schœnus nigricans* and *Eriophorum pubescens*. At Rievaulx, on the bridge which crosses the Rye, grew *Geranium pusillum*; and at some distance up the river we found a few plants of *Hesperis matronalis*. We next visited Rievaulx Abbey; I have not room here to expatiate on its beauties, or on those of the romantic valley (Bilsdale) at the southern extremity of which it is situated; but I may mention that we gathered *Rosa tomentosa* growing nearly at the summit of the ruins of the choir. We were now directed across the hills to Beckdale and Helmsley, but as we had no road to follow, we were many times at a loss which way to turn, and did not reach Helmsley until the evening. But our walk was far from being uninteresting: we passed along several fine and well-wooded valleys, and in one of them, called Dark Gill, we found *Helleborus viridis* and *Actæa spicata* growing together in great abundance. This is certainly the wildest station for the former plant I ever saw, and I think no one who should see it growing there, could for a moment doubt its being truly indigenous to the soil: I know several other localities for *Actæa*, but all on either the coralline oolite or magnesian limestone. Besides the two plants last mentioned, we observed here and there plants of *Campanula latifolia*, *Pyrola minor*, *Paris quadrifolia* and *Crepis paludosa*. A little beyond this wood we saw on a hill-side a patch of *Sambucus Ebulus*, but not in flower; and in another wood we found quantities of *Elymus europæus* and *Melica nutans*. By the brook-side at the bottom of one of the valleys grew *Myrrhis odorata*. After toiling up and down hill for a long time, we at last emerged into Beckdale, and commenced searching for *Cypripedium Calceolus*, which has been gathered there, but did not succeed in finding it. In fact, to examine perfectly the tract of country which we this day only passed through, would require many days, and even weeks. Beckdale extends quite to the town of Helmsley, where we remained a short time for the sake of refreshment and rest, and then started again for Pickering. Our road lay through a highly cultivated, and therefore (to us) uninteresting country; and passing through Kirby Moorside, Symington, &c., we arrived at Pickering about 10 o'clock P.M.

At 8 o'clock next morning we left Pickering by the Whitby railway for the Hole of Horcum. The part of the railway traversed by us runs up a deep valley, through ground in general somewhat marshy, and two or three times crosses the brook which runs through Pickering. As we went along we noticed the following plants: *Ægopodium Podagraria*, *Serratula tinctoria*, *Myrica Gale*, *Carex vesicaria* and *riparia*. At Raindale (7 miles from Pickering) we left the railway, and turning to the right, proceeded across the barren moors in the direction of the Hole of Horcum, which we reached after three or four miles of very rough walking, having gathered by the way *Sphærophoron coralloides* (growing on large stones), and a few plants of *Scyphophorus cocciferus*. The Hole of Horcum is "a singular basin-shaped hollow, suddenly and deeply excavated, in the Moorlands, through the calcareous grit and lower strata," and may be about four miles in circumference, measured on the ridges of the hills which bound it. Here we expected to meet with *Cornus suecica*, but we unfortunately happened to come up to "the Hole" at a point exactly opposite to its locality, and being

ignorant of this, we sought about in every place that we thought likely to produce the plant, without seeing anything like it, until about noon, when we arrived at a little house standing on the east side, under Saltergate Brow. Here we called and procured some refreshment, and on enquiring if our entertainers had ever observed anything like the plant, which we described to them, we learned that such a plant (called by them "honeysuckle") had been sometimes come in search of by botanists. The mistress of the house (a widow of the name of Smith) was the only person acquainted with the exact locality, and she chanced to be from home; but her son-in-law recollected having heard her say that it grew on the hill-side adjoining the Whitby road, between two plantations, and to this place he volunteered to conduct us. We gladly accepted his offer, and on coming to the spot were gratified by finding the beautiful little *Cornus* growing in great plenty, but so nearly out of flower that after a laborious search we only succeeded in procuring a dozen flowers each. Its fruit does certainly considerably resemble that of the common honeysuckle, besides there being a close natural affinity between the two plants, and hence no doubt arose the name we heard given to it. Along with the *Cornus* were three other plants with nearly ripe fruit, viz., *Empetrum nigrum*, *Vaccinium Myrtillus* and *Vitis-Idea*. The other plants observed here were *Habenaria chlorantha*, *Gymnadenia conopsea*, *Listera cordata* and *Crepis paludosa*. In our walk hence to Pickering (9 miles) we observed on an old wall near Lockton, *Asplenium Trichomanes*, *Ruta-muraria* and *Adiantum-nigrum*, and a variety of *Cystopteris fragilis*, growing in great abundance. We also saw here and there, in stony places, *Cerastium arvense*.

On our return to Ganthorpe (15 miles) next day, our road lay principally through the vale of Pickering (Kimmeridge clay), where we gathered *Festuca elatior* and *Rosa systyla* near Kirby Misperton, and *Nasturtium sylvestre* at Newsham Bridge, where we crossed the Rye. Coming again upon the coralline oolite we found *Anthemis arvensis* on Barton heights, and this was the last plant we saw worth mentioning. I will only farther observe that although during our ramble we had collected many interesting plants, we were yet deeply sensible that for want of sufficient time we had but imperfectly explored a country which undoubtedly contains many rarities hitherto unnoticed.

RICHARD SPRUCE.

Collegiate School, York,

12th October, 1841.

ART. XXXVII.—*A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

THE following must by no means be considered a complete Catalogue of the plants to be met with in the unusually rich locality presented by the neighbourhood of Swansea, but rather as the nucleus of a future Swansea Flora. In the absence of such a work, the list is offered to the notice of botanists who may be visiting this portion of Glamorganshire, which they will find a district peculiarly rich in both land and marine plants. Several rarities have been detected there within the last two years, by my friend Mr. Ralfs, of Penzance, a most indefatigable and attentive botanical observer; and I have no doubt that many more, if carefully sought for, might be added to the already copious list, as much ground, I feel convinced, yet remains unexplored.

Swansea can now boast of a Royal Institution for the cultivation and advancement of Science, at the head of which, as President, is L. W. Dillwyn, Esq. The Institution already possesses a most extensive herbarium presented by Mr. Bicheno; and I look forward with confidence to the time when a complete list of all the plants found in the neighbourhood, with a specimen of each species, will be deposited in the Institution: This would indeed be most interesting and acceptable to the botanist visiting Swansea, and would supply, in the best manner, the present want of a local Flora.

Ranunculus Flammula. Neath Canal; Cromlyn Bog; and Singleton Marsh.

———— *Lingua.* On Cromlyn Bog and Neath Canal, in great abundance; also Kenfig Pool.

———— *bulbosus.* Near the Neath Canal by Dan-y-graig.

———— *parvulus.* The plant mentioned under this name in the 'Botanist's Guide' as having been found near St. Helen's, is nothing more than a variety of *Ran. hirsutus*, (Dillwyn).

———— *hederaceus* and *aquatilis.* Neath Canal.

———— *sceleratus*, *repens* and *acris.*

Trollius europæus. On the banks of the Dylais above the waterfall at Aberdylais, in moist meadows between Pont Nedd Vechn and Usgoed Eynon gaur, and in the valleys about Ystradgunlais, (Dillwyn).

Helleborus fœtidus. Found by Dr. Turton near Park Mill, towards Pennard Castle, and existing at present in great abundance.

Aquilegia vulgaris. In hedge-rows near Mincian Hole, with both white, blue and pink flowers.

Nymphaea alba. In the greatest abundance on Cromlyn Bog, the water at certain seasons of the year being quite studded with its elegant blossoms.

Papaver dubium. Common.

———— *Rhæas.* Kilvey Hill.

Meconopsis Cambrica. At the waterfalls about Pont Nedd Vechn, and in the valley above Aberdylais, plentiful, (Dillwyn).

Glaucium luteum. Near Port Tennant, Singleton and Gower.

Fumaria capreolata. Common by roadsides between Ferry and Port Tennant.

Matthiola sinuata. On the sand-hills between Swansea and the Mumbles, nearly opposite Singleton; and also on the sea side of Cromlyn Burrows, but now much less plentiful than formerly.

Nasturtium officinale. Common.

———— *sylvestre* and *terrestre.* Banks of the Neath Canal.

Barbarea vulgaris. Near Park and Pennard Castle; common at Cadoxton.

Arabis hirsuta. On the walls of Oystermouth Castle; about Park Mill; and near the Ferry.

Sisymbrium thalianum. Near St. Helen's turnpike.

Cardamine hirsuta, Kilvey Hill; and var. *flexuosa*, common.

Draba aizoides. Found growing in the greatest luxuriance on Pennard Castle, where it was first noticed by the late Mr. Lucas, of Stouthall, who communicated his discovery to Dr. Coite of Ipswich; and it was the fault of Dr. Coite, as he admitted to me, that the merit of this interesting addition to the British Flora was not given to Mr. Lucas. Mr. Lucas afterwards showed the plant to Dr. Turton, and he sent the specimens to Mr. Sowerby which were figured in the 'Eng.

- lish Botany.' It also grows on the Worms Head, and on several inaccessible cliffs in that neighbourhood; (Dillwyn).
- Cochlearia officinalis*. Banks of the Tawe, between Swansea and Llandore, plentiful, (Dillwyn).
- *anglica*. Found by Mr. J. Woods on the river-banks a little above Swansea, (Dillwyn).
- *danica*. Near Singleton; abundant on rocks near Mumbles light-house; in Kidwelly Church, Oystermouth Castle.
- Armoracia rusticana*. Road to Dan-y-graig; in enclosure of Lady Huntingdon's Chapel, Swansea; and Fabian's Bay.
- Thlaspi arvense*. Gathered near Wych-tree Bridge, and I believe it is not uncommon in the neighbourhood, (Dillwyn).
- *alpestre*. About Pont Nedd Vechn and Aberpergwm, (Dillwyn).
- Hutchinsia petræa*. On the walls of Pennard Castle; and on sandy ground south of Pennard Castle, April 20, 1839, by M. Moggridge, Esq.
- Teesdalia nudicaulis*. On wastes and road-sides about Swansea, not uncommon, (Dill.)
- Cakile maritima*. In abundance on the sea-shore near Salt-house point, Fabian's Bay.
- Erysimum Alliaria*. Near the Ferry.
- Senebiera Coronopus*. Singleton Marsh.
- *didyma*. Llandwr Marsh, common; Cadoxton and Fabian's Bay.
- Capsella Bursa-pastoris*. Cline Wood and Mumbles road.
- Lepidium rudemale*. Occasionally found on rubbish-heaps and ballast-banks about Swansea, (Dillwyn).
- *campestre*. On banks of the Neath Canal.
- *Smithii*. Everywhere on the sea-shore.
- *Draba*. Formerly abounded on the ballast-banks by the river-side a few hundred yards northward from the Pottery, but the ground has been converted into wharfs, and I doubt whether it is now to be found there, (Dillwyn).
- Brassica Napus*. Kilvey Hill, common.
- Sinapis Monensis*. On the downs near Park, and above Mincian Hole, two specimens were gathered last summer and one this summer, 1839, (M. Moggridge). Rocks and down near Pennard Castle.
- *arvensis*. Common, near St. Helen's turnpike.
- *nigra*. On a rubbish-heap in a field by the side of the St. Helen's road.
- Diplotaxis tenuifolia*. Near Llandwr.
- *muralis*. Between Swansea and Port Tennant, and common on sand-hills by the road-side.
- Crambe maritima*. On the sandy shore between the Neath and Afan rivers, and found by Dr. Turton, near Porteynon, (Dillwyn).
- Raphanus Raphanistrum*. On Kilvey Hill.
- Viola palustris*, and a white variety. River-side, Pentlegare.
- *tricolor*. Near Singleton, but probably strayed from the garden.
- β , *arvensis*. Common.
- *lutea*. The Black Mountain has been noted as a habitat of this plant since the days of Merrett; and though generally an inhabitant of mountains, I have found it growing on Cromlyn Burrows, (Dillwyn).
- Helianthemum canum*. Cockit, in road leading to back of Uplands.
- *vulgare*. Common.

- Drosera rotundifolia*, *longifolia* and *anglica*. Town Hill in the boggy ground; also in Cromlyn bog and Cwm bucha.
- Polygala vulgaris*, and the white and rose-coloured varieties. On the banks of the Neath Canal, Pentlegare, Worms Head.
- Malva sylvestris* and *moschata*. Common.
- *rotundifolia*. Near Singleton.
- Lavatera arborea*. At Paviland Cave and in Loughor Marshes.
- Hypericum calycinum*. In Nicholston Wood near Penrice Castle; and I believe it to be as much indigenous there as in any other part of Britain; (Dillwyn).
- *quadrangulum*. Road leading to Kilvey Hill.
- *perforatum*. Near and on Kilvey Hill.
- *dubium*. In the woods about Penrice.
- *humifusum*. Singleton; back of Uplands.
- *pulchrum*. Near Singleton, and Neath Canal.
- *elodes*. Near Singleton, and Port Tennant.
- *Androsæmum*. Singleton, and woods near Neath; Britton Ferry, Drumma and Penrice.
- Saponaria officinalis*. Plentiful on the Burrows about Singleton, and has been so since 1802, (Dillwyn).
- Silene inflata*. Sea-shores, common.
- *maritima*. Rocks on the coast of Gower.
- Lychnis Flos-cuculi*. Cromlyn Bog and the Neath Canal.
- *diurna*. Hedges near Kilvey, common.
- Spergula arvensis*. Kilvey Hill.
- Sagina procumbens*. Mumbles Road.
- Alsine peploides* ? Near the Ferry.
- Arenaria serpyllifolia*. Between the Ferry and Port Tennant.
- *rubra*. Plentiful in a stone-quarry near Greenhill turnpike.
- *marina*. Near Neath canal, on muddy shores.
- Cerastium glomeratum*. Between Swansea and Neath.
- *triviale*. Common.
- *tetrandrum*. On sand-hills, not uncommon, growing with *C. semidecandrum*, of which I am satisfied it is nothing more than a variety, (Dillwyn).
- Stellaria nemorum*. Discovered by Mr. Woods at Uscoed Hendry, and in other places about the neighbourhood of Ystradgunlais. This plant is common in the north, but I am not aware of its having been found elsewhere in Wales, or in any of the southern or midland counties of England.
- *media*. Near Singleton.
- *holostea* and *graminea*. Common.
- Linum usitatissimum* and *angustifolium*. Common about Swansea, (Dillwyn).
- *catharticum*. Singleton Marsh; Pennard.
- Tilia microphylla*. Woods about Pont Nedd Vechn, where it was discovered by Mr. E. Foster. It is figured in 'English Botany,' 1705, with the name of *T. parvifolia*; (Dillwyn).
- Acer Pseudo-platanus*. Near Singleton on the marsh.
- Geranium pratense*. Frequent in the hedge-banks between Aberpergwm and Pont Nedd Vechn.
- *robertianum* and *columbinum*. Between the Ferry and Port Tennant.

Geranium molle and *dissectum*. Near Port Tennant, (Dillwyn).

——— *sanguineum*. In great luxuriance near Pennard Castle ; common on the cliffs in Gower, (Dillwyn).

Erodium cicutarium. Common. A var. *triflorum*, or three-flowered Stork's-bill, is also met with near Swansea. It is plentiful on the sand-hills ; and although by many botanists considered to be only a variety of the above, yet it certainly differs materially from it ; the peduncles are almost invariably three-flowered.

——— *cutarium*, vars. *album* and *purpureum*. Sea-shore near the Ferry.

Oxalis Acetosella. Common in hedge-rows.

Montia fontana. On the Town-hill.

Cotyledon Umbilicus. Common, especially on the road to Uplands.

Sedum Telephium. Llandwr Marsh.

——— *acre*. Banks of Neath canal, and Loughor Marshes.

——— *reflexum*. Common on walls.

——— *Forsterianum*. Banks of Neath canal.

Peplis Portula. In Llandwr Marsh.

Lythrum Salicaria. Common in hedges near Singleton.

Rhamnus catharticus. In Cline and other woods, (Dillwyn).

——— *Frangula*. Cline wood.

Ulex europæus and *nanus*. Common:

Genista tinctoria. Llandwr and Forest Marsh ; meadows near Pentlegare.

Sarothamnus scoparius. Near Pont Wern ; and near Poppit Hill ; seen five or six years ago by Mr. Ride.

Anthyllis Vulneraria. In a marsh near Singleton, and on Kilvey Hill.

Ononis arvensis. Near Port Tennant and Singleton.

Trifolium repens. Between Swansea and Singleton.

——— *pratense*. Near Neath.

——— *medium* and *procumbens*. Kilvey Hill.

——— *scabrum* and *glomeratum*. On Swansea and Sketty Burrows, (Dillwyn).

——— *fragiferum*. Near Singleton ; banks of Neath canal.

——— *minus*. Cline wood.

Lotus corniculatus and *major*. Common on the sand hills, and near Port Tennant and Singleton.

Medicago sativa. Kilvey Hill, (cultivated ?).

Vicia hirsuta. Fabian's Bay.

——— *Cracca*. Kilvey Hill.

——— *sativa*, β . *angustifolia* and *lathyroides*.

——— *sepium*, var. *flore albo*. In meadows about Inispenlweh bridge, where this unusual variety was first noticed by Mr. E. Hawkins, (Dillwyn).

Lathyrus sylvestris. About the top of the cliff on the right of the entrance to Caswell Bay, and about Oystermouth Castle.

——— *pratensis*. Common in hedges.

Orobis sylvaticus. Found by J. Llewellyn, Esq. in a woody meadow called Fir-point, Cadley, in the grounds of Pentlegare ; found also last summer by the side of the drive to the house.

——— *tuberosus*. Pentlegare and Cline wood.

J. W. G. GUTCH.

(To be continued).

ART. XXXVIII.—*Notices of Books &c. connected with British Botany.*

1. *A Catalogue of British Plants. Part I. Containing the Flowering Plants and Ferns.* By J. H. BALFOUR, M.D. Edin., Regius Professor of Botany, Glasgow; CHARLES C. BABINGTON, M.A. Cantab., F.L.S.; and W. H. CAMPBELL, Secretary to the Botanical Society. *Second Edition. Printed for the Botanical Society of Edinburgh.* Edinburgh: Maclachlan, Stewart and Co. London: H. Bailliere. Glasgow: Smith and Son. Dublin: W. Curry, jun. and Co. Paris: J. B. Bailliere. Leipzig: J. A. G. Weigel. 8vo. 1841.

THE various improvements manifest in the new edition have greatly enhanced the value of this Catalogue, both as a medium of communication and a manual for reference. Not the least of these improvements we consider to be the change of form; for instead of the unwieldy folio sheet, we now have a greater amount of information compressed into a neat octavo. One grand feature of the new edition consists, however, in numerous changes of nomenclature; the names of the editors are a sufficient guarantee that these changes have not been lightly or unadvisedly made, and their reasons for making them will be seen in the following extract from the Preface. "In drawing up the Second Edition of the Botanical Society's Catalogue, the compilers have been desirous, as far as possible, to make the nomenclature of British plants correspond with that adopted by the best continental writers. In doing this, they have been forced to make many alterations, the importance of which will, it is hoped, be recognized by the members of the Society. They have been guided in their amendments chiefly by the works of De Candolle, Koch, Nees von Esenbeck, Kunth and Leighton. When the name of a genus or species has been changed, reference is made to the name under which it appears in the fourth edition of Sir Wm. Hooker's British Flora. The sources whence new species are derived are indicated by reference to the works from which they are taken, and when they are still unpublished as British plants they are marked as additional species."

The importance of following some uniform system of nomenclature cannot be disputed: and anticipating as we do, a very wide circulation for the Botanical Society's Catalogue, we would venture to suggest to our correspondents the expediency of their adopting it as a standard for names in drawing up local lists of plants. We would even go so far as to recommend that the alphabetical arrangement of the Catalogue should also be strictly adhered to; for we consider the systematic arrangement of species in a merely local list, to be a matter of minor importance. The neutrality of the alphabetical arrangement, setting aside its convenience, will surely go far towards recommending the Edinburgh Society's Catalogue as a model worthy of being adopted by botanists engaged in framing local lists of British plants, whether the Linnæan or the natural system may stand highest in their favour as the principle on which a general Flora ought to be arranged.

In comparing the enumerations of the plants in the two editions of the Catalogue, we observe that the new one contains a numerical preponderance over its predecessor, of 13 species and 90 varieties, and includes 24 species not contained in any other list of British plants.

2. *An Illustrated Catalogue of British Plants, arranged according to the Natural Orders; in which the two Systems are combined by reference to 'English Botany,' the works of Sir. J. E. Smith, Hooker, Lindley, Macreight and DeCandolle.* By C. E. SOWERBY, A.L.S. London: Sowerby, 3, Mead Place, Lambeth; Longman & Co.; Simpkin & Co. Part 1, 12mo. November, 1841.

WE believe Great Britain to be the only country in the world which can boast of having its botanical treasures fully and ably illustrated by three successive generations of the same family. The merit of designing and engraving the plates of this little work is due to a grandson of the late Mr. Sowerby; and the style in which they are executed is another proof that no inconsiderable portion of the talent displayed in the productions of the first illustrator of 'English Botany,' is inherited by even the younger branches of his family. Each part of the Catalogue will contain 8 plates, each plate comprising 6 coloured figures; the letter-press gives the scientific and English names of the species, their habitats, duration, and times of flowering; together with references to the two editions of 'English Botany,' and to the well-known works of the authors enumerated above. The 48 figures in the first part are very prettily executed. Instead of giving a figure of the *whole* plant on a small and uniform scale, the artist has judiciously adopted the plan of drawing the upper portion of each species, with its flowers and foliage, and, without going minutely into details, has added such other parts as are absolutely necessary for specific distinction. The figures are drawn as nearly of the natural size as the limits would allow, and are carefully and neatly coloured.

We have great pleasure in recommending this Catalogue to the notice of all who, at a moderate price, would possess a portable and useful series of illustrations of our native plants.

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3. *A Series of Botanical Labels for the Herbarium, adapted to the respective Floras of Smith, Hooker, Lindley and Macreight.* Edited by a Corresponding Member of the Botanical Society of London. London: Longman & Co.; W. Pamplin, 9, Queen St., Soho Square. Faversham: W. Ratcliffe. 8vo. 1841.

THESE labels will be found very useful by all engaged in the formation of a British herbarium. They may be had either in sheets, for the purpose of being cut out and attached to the papers containing the species, or made up in a neat 8vo. volume, which can be used as an index to the collection. The following extracts from the preface will more fully explain the plan of the work.

"The aim has been to condense into a small space as much information as possible;—each label therefore contains the Natural Order, the Linnean Class and Order, the generic, specific, and common name of the plant for which it is intended, together with the synonyms of the botanists just named, [Smith, Hooker, Lindley and Macreight]: the principal habitat is also added (except in the case of the rarer plants, where localities are given instead), and a sufficient blank space is left for the insertion of the customary memoranda of time, place, and collector's name.

"As each plant has one or more labels assigned to it whenever the writers above-mentioned differ in their nomenclature, all will be able to select that of their favorite text-book, while the synonyms attached will show the arrangement adopted by the other three authorities, and thus, to the less advanced student, tend in some degree to increase the facilities of botanical intercourse."

ART. XXXIX. — *Varieties.*

76. *Note on the Genus Tilia.* There is, I think, a misapprehension on the part of the writer in No. 5 of 'The Phytologist' (p. 79), as to my remarks on the Lime. The fact is, about two years ago I sent to the Botanical Society of London, a paper on the British species of the genus *Tilia* (lime-tree), which perhaps he heard read. Since that time the Society have published no Transactions, and consequently my paper has not appeared, and I am not aware that any abstract of it was ever printed in the 'Magazine of Natural History,' or elsewhere; except that I also communicated to Mr. Loudon, for his 'Arboretum Britannicum,' the fact of a large wood, of more than five hundred acres in extent, existing in Worcestershire, where, strange to say, the greater part of the *underwood*, regularly cut down at stated intervals, consists of *Tilia parvifolia*: thus, I should say, removing any doubt, if any could exist, of the indigenoussness of this tree, as far as England is concerned. My paper, however, went to show that *T. grandifolia* was also indigenous, and that *T. europæa* was to be included under *T. grandifolia* as a form. Numerous localities were named, and old individual trees adverted to. I also descanted on the natural history of the lime, and contended (at least as far as that tree was concerned) that the *honey-dew* was really an exudation of its saccharine juices, and had nothing to do with the Aphides. I see a very interesting anecdote of Mr. Luxford's is opposed to me as respects another tree (Entomol. No. 90); but the fact really is, that as in the old nursery tale of the shield that was gold on one side and silver on the other, so with the honey-dew. In some cases the Aphides cause it, and in others, *at a particular temperature*, it exudes from the leaves without their agency. The latter is certainly the case with the lime at any rate.—*Edwin Lees*; *South Cottage, Malvern Wells, October 4, 1841.*

77. *Veronica montana*, (Phytol. 70). This is always included in lists of rare plants, wherefore I cannot tell, unless that it is passed over for *Ver. Chamædrys*, and consequently esteemed a treasure when accident brings it prominently before the notice of the botanist. It grows plentifully in all the woods and shady dells and dingles in the neighbourhood of Bristol; nor is it less frequent about Manchester, where I have seen it in every locality favourable to its taste for moisture and seclusion. Mere Clough, Agecroft Clough, Boghart-hole Clough, Ouse-end Clough, &c., produce it in abundance.—*L. H. Grindon*; *Manchester, October 20, 1841.*

78. *Astrantia major*. This plant was, in 1840, discovered by Mr. Dl. Sharpe in the wood above Stokesay Castle, Shropshire, "in plenty." Mr. Borrer this summer examined the wood, which is extensive, and found four large patches of it along the little-frequented path at the upper edge of the wood, and one a little off from the path, near one of the four. It had every appearance of being quite wild, and the locality did not favour the idea of an accidental escape from cultivation. Possibly, however, it may have been sown there; and perhaps some of your correspondents may be able to clear up this doubt, as well as to inform us whether it occurs dispersedly over the wood.—*W. A. Leighton*; *Shrewsbury, November 1, 1841.*

79. *Silene nutans*. In answer to your correspondent (Phytol. 91), I beg leave to state that to the best of my knowledge *Silene nutans* grew on Nottingham Castle-rock previously to the castle being burnt, sparingly, as it does at present; but since that event in 1830, it has established itself on the walls, in the crevices between the stones and in fact in every place where it is possible for a plant to vegetate.—*Joseph Sidebotham*; *Manchester, November 4, 1841.*

ART. XL.—*Proceedings of Societies.*

LINNEAN SOCIETY.

November 2, 1841.—The Lord Bishop of Norwich, President, in the chair. The following donations were announced. Nearly 1000 species of plants collected in Riakhy, Piauhy and Goyaz, by Mr. Gardner. Specimens of *Gnaphalium margaritaceum* and of a peculiar form of *Linaria repens* from the west of Ireland, by Mr. Hinckes. A collection of dried plants from the West Indies and Madeira, by Lord Dartmouth. Mr. Ingpen exhibited a myrtle growing in a glass cylinder carefully sealed. A letter from M. Alphonse DeCandolle, announcing the death of his father, was read.

BOTANICAL SOCIETY OF LONDON.

November 5.—Hewett Cottrell Watson, Esq., F.L.S., Vice-President, in the Chair. Donations to the library were announced from the Botanical Society of Edinburgh, the West Riding Geological Society, the Portsmouth Philosophical Society, the Lancaster Natural-History Society, Mr. Thwaites, Mr. Lees and The Rev. I. Sansom. Mr. G. Knapp presented some grasses and mosses from Fernando Po; and British plants were announced as having been received from Mr. Thwaites, Mr. Croall, Mr. Brown, Mr. Fordham, Mr. Simpson, Mr. Lees and Mr. Bidwell. Mr. H. O. Stephens of Bristol presented thirty-three species of British Fungi.

A paper was read from Mr. G. H. K. Thwaites, on *Polystichum aculeatum* and *Pol. lobatum*. The author observes that owing to the difference of opinion entertained respecting these ferns by botanists of celebrity—some considering them two distinct species, and others that they are merely varieties of one—any facts tending to bring to light their real character must be interesting; and therefore he has much gratification in making known a peculiarity of structure exhibited by each, whereby he considers all doubt as to their being distinct species will be removed.

The two ferns, in their typical form, differ very materially from each other; and their differences have been well described by those who have written on the subject. But almost all, if not the whole of the characters which have been set down as distinctive, are liable to be so extremely modified by different degrees of altitude, moisture, light, exposure &c. of situation, that an unpractised eye would often be quite unable to determine the species of these closely-allied plants, whence, questionless, has arisen the doubt as to their separate specific individuality. Thus, *Polystichum lobatum*, upon an elevated situation, possesses a lanceolate frond, generally very close and compact; its pinnae overlapping each other; occasionally, however, these are distant from each other to almost the extent of their width, and the pinnulae are more separated, so that the plant much resembles *P. aculeatum*. But *P. lobatum*, when growing in a low situation, is still more like *P. aculeatum*; its fronds, instead of being lanceolate, inclining more to ovate, its pinnulae also are not merely serrated, but become slightly pinnatifid, indeed the plant can with difficulty be identified. These facts, and several others which might be adduced, show the slight value, in this genus, of characters derived from the outline of the frond or of the pinnae and pinnulae, which are all so liable to vary in this particular: it was therefore very desirable to endeavour to find some more constant character by which these kindred species, if they proved species, might be distinguished one from the other; and after many hours spent in diligent examination of a great number of fronds, the author discovered a difference of venation in the two species, which he thus describes.

"In examining the fronds of *P. aculeatum*, it may be noticed that the veins which bear thecae are not continued, like the rest of the veins, to the edge of the pinnulae, but each terminates either at its mass of thecae, or at a very little distance beyond it. The same thing is not observable in *P. lobatum* (when mature), for the corresponding veins in this are each continued through its mass of thecae to the very edge of the pinnule, and even in the fronds of immature plants of this species, when there is but little fructification, the same character is perceptible in the pinnulae nearest the base of the pinnae and of the frond—the parts which in ferns exhibit most strikingly all the characters of maturity: in a few of the terminal pinnulae some of these veins do not reach the edge. It must not be concealed that in *P. aculeatum*, in an extremely few instances (being just what might be expected) is a slight indication discoverable of a theciferous vein being continued to the edge of the pinnule; but in this the appearance is very different to the decided character observable in *P. lobatum*."—*G. E. D.*

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No. VIII.

JANUARY, MDCCCXLII.

PRICE 6D.

ART. XLI.—*A Botanical Excursion in Teesdale, in July, 1840.*

By SAMUEL KING, Esq.

Lane House, Luddenden, near Halifax,

SIR,

October 20, 1841.

Taking it for granted that any communication respecting plants will be acceptable for your periodical, I take the liberty of sending a short account of a botanical excursion in Teesdale in July, 1840. If you think it worth printing it is quite at your service.

Yours &c.

SAMUEL KING.

To the Editor of 'The Phytologist.'

ON the 20th of July my companion and myself left Darlington for Barnard Castle, a distance of sixteen miles. The common hedge-plants of this neighbourhood are *Ballota nigra*, *Lamium album*, *Bryonia dioica*, *Potentilla reptans* and *anserina*, *Cynoglossum officinale*, *Lycopsis arvensis*, *Hordeum murinum*, *Conium maculatum*, *Reseda luteola*, *Chærophyllum temulentum*, *Lychnis vespertina*, &c. We arrived at Barnard Castle about 11 o'clock, and proceeded to Cotherston (a distance of four miles), where we commenced our work by going up Balderdale in search of the rare *Saxifraga Hirculus*: as we went on we observed *Cnicus heterophyllus*, *Ribes petraeum*, *Geranium sylvaticum*, &c. After walking about four miles we arrived at Hurry; here we learned that a person named Joseph Raine, who resided at a farm-house called East Waybut, knew something about the plant we were in search of. At about a mile farther on we came to the house and found the man, who readily undertook to conduct us to the spot where the *Saxifraga* was growing: he knew the plant well, and gave us two specimens which he happened to have by him. When we had gone about two miles farther up the valley, which is wild and barren, we crossed the water and got on the edge of Cotherston Fell, about half a mile below the junction of the Black Beck and Balder Beck: here we found plenty of *Saxifraga Hirculus* growing among moss in a wet swampy place, in company with *Sedum villosum*, but being too early in the season, we could obtain but two plants in flower. We then returned to the house of our guide, and wrote our addresses with a quill pen upwards of twenty years old; in the following August our guide collected for me a number of specimens of the *Saxifraga*, and transmitted them by post. On leaving our guide's house he directed us over the fells to Middleton in Teesdale, about six miles distant; but in consequence of losing our road on the fells, we did not arrive there until late.

Next morning, accompanied by Mr. Thompson, the landlord of the Talbot Inn, we started for High Force Inn, distant five miles, calling in our way at New Bigging. Thence we passed over the fields to Winch Bridge, where the Tees is crossed by a foot bridge. Here the troubled stream of the Tees is confined by rocks, upon which, and on the adjoining ground, grow *Serratula tinctoria*, *Cnicus heterophyllus*, *Galium*

boreale, *Rubus saxatilis*, *Potentilla fruticosa*, *Melampyrum sylvaticum*, *Polygonum viviparum*, *Plantago maritima*, *Geranium sylvaticum*, *Festuca vivipara*, *Primula farinosa*, *Pyrus Aria*, *Trollius europæus*, *Rosa Sabini* and *involuta*, and some other species which require more examination in a growing state. I do not find any record of this locality for the two roses here mentioned, which I discovered here, on the Yorkshire side of the Tees. The latter is said to grow in the Hebrides and Western Highlands of Scotland, but as far as my knowledge extends, this is the first time of its having been gathered south of the Tweed. One old plant was all that I found at the time, a sucker from which is now growing freely in my garden. I am inclined to think that *Rosa Doniana* of Smith grows freely in the same place. This spot is about a mile from High Force Inn. In the afternoon we visited High Force, which was an awfully grand sight, the river being much swollen by the heavy rains. We here observed plenty of *Cnicus heterophyllus*, *Brachypodium pinnatum*, &c.

The morning of July 22nd being fine, we set out, with Mr. Scott the landlord for our guide, he being well acquainted with the localities of all the rare plants of the neighbourhood. We proceeded by way of Whey Syke, crossed Langdon Beck, and so on to Widdy Bank, where we gathered *Bartsia alpina*, *Gentiana verna* (in seed), *Carex capillaris*, *Equisetum variegatum*, *Parnassia palustris*, *Tofieldia palustris*, *Saxifraga aizoides*, *Lycopodium Selaginoides*, &c. Widdy Bank being an extensive tract it will be necessary to say that the place where we gathered the above plants was the sloping bank of the Tees, in Widdy-Bank Farm. From this spot we proceeded to Falcon Clinks; here grow *Lycopodium Selago*, *Cryptogramma crispa*, *Asplenium Trichomanes*, *viride* and *Ruta-muraria*, *Sedum Telephium*, *Vaccinium Vitis-idæa* and *Juniperus communis*, in great abundance. Here I cast around many an anxious look for *Woodsia Ilvensis*; at length, after much searching, and a good wetting from the drip of the water from the huge basaltic rocks, to my great joy I espied two small plants, which were instantly secured; a little farther on we saw three more under a bush of *Prunus Padus*, but not liking to destroy the plant, we left the roots of these in the crevice of the rock where they were growing. After resting awhile under the Clinks, I had another round at searching for this wee fern, but without success, so I was obliged to leave the spot with an impression that one day or other it would be extinct there. As we passed along I observed plenty of what I then called *Asplenium viride*, but not wanting that plant I did not gather any, it now however strikes me forcibly that among this was *Asplenium fontanum* also. A few hundred yards above the last-mentioned locality is Caldron Snout. This is a place where the Tees, which above here runs on a level, now rushes with tremendous fury down among rocks for I should think not less than a hundred yards. Over the Snout is a narrow wooden bridge, connecting the counties of Durham and Westmoreland, which we crossed, and in traversing the extreme point of the latter county, found *Ajuga alpina*? *Habenaria viridis*, *Gentiana campestris* &c. We then forded the swollen Maize Beck into Yorkshire, and obtained a fine view of the Snout. Passing along we gathered *Sedum villosum*, *Saxifraga hypnoides*, *Rubus Chamæmorus* &c. At length we reached the summit of Cronkley Fell, and there we gathered *Lycopodium alpinum*, *Dryas octopetala*, *Cistus marifolius* and *Helianthemum*, *Carex capillaris* and *pulicaris*, *Tofieldia palustris*, *Arenaria verna*, *Gentiana verna*, *Thalictrum alpinum*, *Anthyllis vulneraria*, *Aira cristata*, *Hippocrepis comosa*, *Thymus Serpyllum*, &c. Pursuing our course towards Cronkley Bridge, we gathered *Carex binervis*, *Avena pratensis* and *pubescens*, and *Habenaria viridis*; we then recrossed the Tees to the Durham side, when our guide

left us, taking the nearest road home, and we went down the valley, where *Potentilla fruticosa* and other plants grow in abundance. For more than a mile we were almost lost in juniper bushes, with the river on our right hand and high cliffs on our left: here we found *Arbutus Uva-ursi*. When we again reached High Force we gathered *Festuca vivipara* and *Avena alpina*? on the rocks; this is another place where the river falls twenty or thirty yards down the rocks, which are here, as in other parts of Teesdale, gloriously painted with *Lecidea geographica*.

The next day we returned homewards, well laden with plants; visited the lead-mines at Middleton, fourteen miles from Brough. At Church-Brough Castle gathered *Trifolium procumbens*, *Carduus acanthoides* and *Conium maculatum*. Here we had to wait five hours before the coach came up from Barnard Castle to take us to Kirby Lonsdale. We had scarcely taken our seats when the horses started off without guard or coachman, and upset the coach on a bridge; I was so much injured as to be quite incapable of making further observations, and thus ended my botanical excursion in Teesdale.

ART. XLII. — *List of Plants collected by M. Schimper in Abyssinia.*
By N. B. WARD, Esq.

Wellclose Square, October 20, 1841.

My dear Sir,

Among the numerous collections of plants made by the *Unio Itineraria*, there are few that equal, and none that surpass in interest, the collection made by Schimper in Abyssinia. The portion which has reached this country contains about 300 species, mostly procured in the neighbourhood of Adowa; an enumeration of which I send you, as I think it will gratify the readers of 'The Phytologist.'

I have marked with an * the few species which are also natives of Britain.

And am,

My dear Sir,

Your's very truly,

N. B. WARD.

To the Editor of 'The Phytologist.'

<i>Ranunculaceæ.</i>	<i>Cissus Schimperii</i>	<i>Sapindaceæ.</i>
<i>Clematis simensis</i>	<i>Vitis erythrodes</i>	<i>Dodonæa arabica</i>
<i>glaucescens</i>	<i>Myrtaceæ.</i>	<i>Polygalaceæ.</i>
<i>Delphinium dasycaulon</i>	<i>Syzygium guineëns</i>	<i>Polygala punctulata</i>
<i>Umbelliferaæ.</i>	<i>Loranthaceæ.</i>	<i>Linaceæ.</i>
<i>Hydrocotyle asiatica</i>	<i>Viscum nervosum</i>	<i>Linum abyssinicum</i>
* <i>Sium nodiflorum</i>	<i>Loranthus Schimperii</i>	<i>Sterculiaceæ.</i>
<i>Anethum graveolens</i>	(No. 250)	<i>Xeropetalum Brucei</i> . Pen-
<i>Caucalis abyssinica</i>	<i>Cucurbitaceæ.</i>	tapetes. Bruce, Tr.
<i>Tragium hirtellum</i>	<i>Momordica pterocarpa</i>	v. pl. 2.
<i>Ammi pauciradiatum</i>	<i>Bryonia scrobiculata</i>	<i>Malvaceæ.</i>
<i>Torilis africana</i>	<i>Resedaceæ.</i>	<i>Pavonia Schimperiana</i>
<i>Vitaceæ.</i>	<i>Reseda abyssinica</i>	<i>Sida triloba</i>
<i>Cissus adenantha</i>		<i>tricuspis</i>

- Sida Schimperiana
 Urena mollis
 Hibiscus macranthus
 (Polychlæna) adoënsis
 Tiliaceæ.
 Grewia ferruginea
 Sparmannia abyssinica
 Triumphetta Vahlîi
 Lythraceæ.
 Grislea micropetala
 Meliaceæ.
 Turræa abyssinica
 Trichilia Rüppelliana
 Rhamnaceæ.
 Halinus mystacinus
 Zizyphus Spina-Christi
 Euphorbiaceæ.
 Clutia lanceolata
 Rottlera Schimperî
 Tragia cordata
 Euphorbia depauperata
 (No. 274)
 Celastraceæ.
 Celastrus edulis
 obovata
 Schimperî
Celastr. sub-or. Hippocrateæ.
 Hippocratea Schimperiana
 Silenaceæ.
 Silene (No. 290)
 Uibelinia abyssinica
 Alsineaceæ.
 Alsine Schimperî
 Illecebraceæ.
 *Polycarpon tetraphyllum
 Xanthoxylaceæ.
 Brucea antidysenterica
 Geraniaceæ. [atum
 Pelargonium multibracte-
 Oxalideæ.
 Oxalis (No. 188)
 Rosaceæ.
 Rosa Schimperiana
 Leguminosæ.
 Virgilia aurea
 Crotalaria spinosa
 Trigonella marginata
 Schimperî
 Trigonella multinervis
 Trifolium subrotundum
 simense
 Indigofera parvula
 (No. 349)
 Glycine micrantha
 elegans
 Tephrosia interrupta
 Sesbania ferruginea
 Colutea (No. 240)
 Ornithopus coriandrinus
 Zornia angustifolia
 Alyssicarpus ferrugineus
 *Vicia angustifolia
 Fagelia resinosa
 Dolichos (No. 226)
 Phaseolus (No. 50)
 Pterolobium lacerans
 Cassia nictitans
 (No. 29)
 Mimosa Habbas
 Acacia Lahai
 Isenbergiana
 albida
 Crassulaceæ.
 Tillæa pharnaseoides
 Sempervivum abyssinicum
 Cotyledon deficiens
 Anacardiaceæ.
 Rhus
 (No. 331)
 Anamaza trifoliata
 Urticaceæ.
 Ficus (No. 373)
 (No. 157)
 (No. 149)
 Urtica (No. 74)
 Santalaceæ.
 Thesium radicans
 Osyris abyssinica
 Amarantaceæ.
 Amaranthus (No. 359)
 Celosia adoënsis
 Pupalia globosa
 Schimperiana
 Phytolaccaceæ.
 Phytolacca abyssinica
 Polygonaceæ.
 Polygonum macrochæton
 salicifolium
 herniarioides
 (Fagopyrum) nepalense
 Rumex abyssinicus
 alismæfolius
 Steudeli
 Ceratogonum sinuatum
 Scleranthaceæ.
 * Scleranthus annuus, var.
 [abyssinicus
 Nyctaginaceæ.
 Boerhaavia (No. 48)
 Ericaceæ.
 Erica acrophyza, Fresen.
 ab E. arborea vix
 diversa
 Primulaceæ.
 Lysimachia adoënsis
 Myrsinaceæ.
 Myrsine africana
 Kellian
 Mæsa (Bœolotrys) picta
 Sapotaceæ.
 Mimusops Kummel
 Convolvulaceæ.
 Convolvulus echioides
 Campanulaceæ.
 Campanula rigidipila
 Lightfootia abyssinica
 Cephalostigma Schimperî
 Cinchonaceæ.
 Pavetta longiflora
 Oldenlandia (No 68)
 Rubia cordifolia
 Anthospermum (No. 94)
 Kohautia (No. 75)
 Compositæ.
 Vernonia Schimperî
 abyssinica
 Cyanopsis Leopoldi
 Sphæranthus indicus
 Dicrocephala abyssinica
 Conyza abyssinica
 Schimperî
 gnaphalioides
 baccharioides

Phagmalion abyssinicum	<i>Boragineæ.</i>	Buddleia polystachya [um
Laggera (Blumea) tomen- purpurascens [tosa	†Trichoderma africanum	Craterostigma plantagine- <i>Solanaceæ.</i>
crassifolia	Anchusa affinis	Solanum adoëse
Gnizottia oleifera	Cynoglossum lanceolatum	bifurcum
Schultzii	<i>Labiataë.</i>	<i>Apocynaceæ.</i>
Bidens abyssinica	Salvia abyssinica	Strychnos abyssinica
Spilanthes abyssinica	scabra	Carissa edulis
Cotula abyssinica	Mitracarpus sphærostigma	<i>Asclepiadeæ.</i>
Helichrysum abyssinicum	*Mentha Pulegium	Periploca linearis
Achyrocline Schimperi	(No. 403)	Kanahia laniflora
Gnaphalium Unionis	Otostegia repanda	<i>Oleaceæ.</i>
(Helichrysum) Steudelii	integrifolia	Nathusia alata
Cineraria abyssinica	Leonotis nepetifolia	<i>Jasmineæ.</i>
Schimperi	Micromeria ovata	Jasminum abyssinicum
Senecio abyssinicus	Ocimum lamiifolium	—
Hochstetteri	coloratum	<i>Amaryllidaceæ.</i>
Schimperi	filamentosum	Hypoxis abyssinica
Tripteris cheiranthifolia	(No. 294)	<i>Irideæ.</i>
Kentrophyllum alatum β,	(No. 309)	Montbrettia abyssinica
[abyssinicum	(No. 333)	<i>Liliaceæ.</i>
Carthamus tinctorius	Leucas Schimperi	Asphodelus Chamæmoly
Gerbera abyssinica	Ajuga (No. 325)	Asparagus
(Leptica) Schimperi	<i>Verbenaceæ.</i>	<i>Commelinaceæ.</i>
Schmidtia (Tolpis) abyssi-	*Verbena officinalis	Commelina striata
Klenzea abyssinica [nica	<i>Bignoniaceæ.</i>	<i>Junceæ.</i>
Adenostemma Schimperi	Bignonia discolor	Juncus Schimperi
Chelinsia abyssinica	<i>Acanthaceæ.</i>	<i>Fluviales.</i>
Prestinaria bidentoides	Barleria pumila	*Potamogeton natans
abyssinica	bispinosa	<i>Gramina.</i>
Wurschmittia abyssinica	abyssinica	Phalaris appendiculata
Steugelia adoënsis	inæqualis	Tricholæna (Eriochloa)
Linzia vernonoides	Justicia calcarata	[grandiflora
<i>Dipsaceæ.</i>	Ruellia multicaulis	Eriochloa purpurascens
*Scabiosa Columbaria	Asteracantha macracantha	Panicum semiundatum
Pterocephalus frutescens	Hypoëstes glandulosa	patens
<i>Plantagineæ.</i>	Gendarussa (Adhatoda)	ternatum
Plantago rugosa	[Schimperiana	geminatum
abyssinica	<i>Scrophularineæ.</i>	quadrifarium
<i>Plumbagineæ.</i>	*Antirrhinum Orontium	brizanthum
Valoradia abyssinica	*Linaria Elatine	uniglume
<i>Cordiaceæ.</i>	Anarrhinum fruticulosum	(Digitaria) muticum
Cordia abyssinica	Bartsia abyssinica	fenestratum
	Buchnera Schimperiana	

† I was induced, by the name of this plant, to examine the cuticle of the leaf under the microscope, and found it a most beautiful object, the cuticle being covered with hairs, surrounded at their base with pearl-like bodies. The same arrangement is seen in *Onosma tauricum*, and doubtless in many other *Boragineæ*.—*N. B. W.*

<i>Panicum</i> (Digit) abyssini-	<i>Eleusine multiflora</i>	<i>Cyperus flagellatus</i>
<i>Pennisetum riparium</i> [cum	<i>flaccifolia</i> [Roxb.?	<i>dichroostachyus</i>
<i>riparioides</i>	<i>Tocusso</i> , Fres. <i>stricta</i> ,	<i>adoënsis</i>
<i>longistylum</i>	<i>Leptochloa setacea</i>	<i>abyssinicus</i>
<i>pentastachyum</i> , Hoch.	<i>Danthonia Köstlini</i>	<i>Fischerianus</i>
(v. si mavis n. g. <i>Pentastachya abyssinica</i>)	<i>elongata</i>	(No. 75)
	<i>abyssinica</i>	(No. 273)
<i>Gymnothrix glabra</i>	<i>Triticum</i> (<i>Brachypodium</i>)	<i>Mariscus Schimperii</i>
<i>Schimperi</i>	<i>Schimperi</i>	<i>Fimbristylis complanata</i>
<i>Andropogon connatus</i>	<i>Poa abyssinica</i>	<i>Isolepis</i> (<i>Bulbostylis</i>)
<i>polyatherus</i>	<i>Eragrostis tenuifolia</i>	[<i>Schimperia</i>]
<i>Schimperi</i>	<i>longifolia</i>	<i>Scirpus brachycerus</i>
<i>insculptus</i>	<i>Catabrosa micrantha</i>	<i>Rhynchospora trigyna</i> ,
<i>abyssinicus</i>	<i>Festuca abyssinica</i>	Hochst. (vel si mavis
<i>Anthistiria punctata</i>	<i>Beckera polystachya</i> , Fres.	novum genus, <i>Erio-</i>
<i>Sporobolus capensis</i>	<i>Bromus adoënsis</i>	<i>spora abyssinica</i>)
<i>Aristida cærulescens</i>	† <i>Londetia elegans</i>	<i>Scleria cenchroides</i>
<i>Pappophorum Schimperii</i>	† <i>Hypodæurus cenchroides</i>	<i>Carex echinochloë</i>
<i>Chloris abyssinica</i> [num	† <i>Psilopogon Schimperii</i>	<i>Filices</i> .
<i>Setaria aurea</i>	† <i>Harpachne Schimperii</i>	<i>Gymnogramma leptophylla</i>
<i>glaucia</i>	† <i>Triachyrum adoënsis</i>	<i>Adiantum thalictroides</i>
<i>dioica</i>	<i>Cyperaceæ</i> .	<i>Nephrodium Schimperii</i>
<i>Michrochloa abyssinica</i>	<i>Cyperus rotundus</i>	<i>Musci</i> . [num
<i>Dactyloctenium aristatum</i>	* <i>longus</i>	* <i>Entosthodon Templetoni</i>

† Nova genera, Hochstetter.

ART. XLIII.—*A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Continued from p. 109.)

Spiræa Ulmaria.

Cerasus Padus. At Pont Nedd Vechn, but not so common as it is about Merthyr Tydfil, (Dillwyn).

Rubus horridus. Fabian's Bay. (*R. horridus* of the Swedes, S. Rootsey).

— *saxatilis*. On the mountains about Pont Nedd Vechn and Ystradgunlais.

Potentilla anserina. Common, Pentlegare.

— *verna*. Found by Mr. Woods above the cliffs between Port Eynon and the Worm's Head, (Dillwyn).

— *reptans*. Common.

— *Fragariastrum*.

— *Comarum*. Singleton Marsh, Cromlyn Bog and Pentlegare.

— *Tormentilla*. Common in hedge-rows.

— — — — *β. nemoralis*. Occasionally found on wastes about Lansamlet, Cadoxton, &c. I have seen flowers with 4, and others with 5 petals, both on this and the more common form of the species.

Agrimonia Eupatoria. Common by road-sides.

Rosa spinosissima. On the Mumbles Road, very abundant.

— *canina*, γ. (*R. surculosa*, Woods). When my friend Mr. Woods was with me on a visit at Pentlegare, this was the only one of his numerous species which he appeared to consider rare, and he found it plentiful in Gower, and on the banks of the Penclawd Canal. Besides *Rosa canina* and *tomentosa*, there are other wild roses in the neighbourhood, but I confess my inability to distinguish from each other many of the species which my friend has described, and I know not which, or whether either of them, is entitled to a place among the British rariores.— (Dillwyn).

— *systyla*.

Alchemilla vulgaris and *arvensis*. Common.

Cratægus Oxyacantha. Mumbles Road.

Pyrus Malus.

— *terminalis*. Woods in Neath valley, and about Britton Ferry and Penrice.— (Dillwyn).

— *Aria*. Woods in Neath valley, (Dillwyn).

— *aucuparia*. Llandwr Marsh.

Ribes alpinum. Mr. Mulne, who was formerly head gardener to the late Lord Cawdor, has informed me that this plant propagates itself freely in the woods at Golden Grove, and is rarely cultivated in gardens, (Dillwyn).

Epilobium hirsutum. Cromlyn bog.

— *parviflorum*, *roseum* and *tetragonum*. Banks of the Neath Canal, near Port Tennant.

— *montanum*. Between Swansea and Port Tennant.

Circea lutetiana. Hedges near Kilvey Hill; Singleton; common in shady places.

Myriophyllum spicatum. Cromlyn Bog.

Hippuris vulgaris. Marsh near Neath Canal.

Daucus Carota. Kilvey Hill.

— *maritima*. Pennard; Gower.

Torilis Anthriscus. Kilvey Hill.

Angelica sylvestris. Kilvey Hill.

Crithmum maritimum. Rocks along the coast.

Œnanthe fistulosa. Near Singleton on the Marsh.

— *pimpinelloides*. By the river-side on Llandwr Marsh.

— *crocata*. Near Kilvey Hill.

Bunium flexuosum. Near Singleton.

Pimpinella Saxifraga. Town Hill.

Helosciadium nodiflorum. Near Singleton.

Carum verticillatum. Abundant in moist pastures near Cwmbola Bridge, Pentlegare, Drymma, and elsewhere throughout the neighbourhood.

Apium graveolens. Marshy places near the Neath Canal; Singleton and Port Tennant.

Charophyllum temulentum. Fields near Singleton and Mumbles Road.

Conium maculatum. In hedges near the Infirmary, common.

Eryngium maritimum. On the sand-hills opposite Cambrian Terrace, Swansea; Cromlyn Burrows and Singleton.

Hydrocotyle vulgaris. Near Port Tennant.

Galium cruciatum. Fabian's Bay.

- Galium palustre*. Near Singleton Marsh.
 ——— *saxatile*. Kilvey.
 ——— *verum*. Found everywhere.
 ——— *Mollugo*. Common.
 ——— *Aparine*. Between the Ferry and Port Tennant.
Asperula odorata. Near Port Tennant and Cline wood.
 ——— *Cynanchica*. Between Swansea and Neath; also most abundant on the sand hills near Park, about 10 miles from Swansea; about Pennard Castle.
Rubia peregrina. Occasionally found about the cliffs, and on the Gower coast.
Cornus sanguinea. Near Port Tennant.
Vaccinium Oxycoccus. Pentlegare; and the field opposite the kennel of the Swansea harriers.
Campanula rotundifolia. Kilvey and Town Hills; and in great luxuriance, with particularly large flowers, on the sand hills near Pennard Castle.
 ——— *hederacea*. Not unfrequent in moist shady places in the Swansea and Neath valleys, in Cwm Clydach, (Dillwyn).
Jasione montana. Road leading to Kilvey Hill.
Lobelia Dortmanna. In the lake in Craig-dyn-fwr, above Aberpergwm, (Dillwyn).
Valerianella Auricula. Fabian's Bay.
 ——— *dentata*. Found by Mr. E. Hawkins at Glanbedue, (Dillwyn).
Dipsacus sylvestris. Banks of the Neath Canal, Fabian's Bay.
Scabiosa succisa. Kilvey Hill and Cline Wood.
 ——— *columbaria*. Pennard Castle.
Knautia arvensis. Port Tennant.
Eupatorium cannabinum. Common in wet ditches.
Inula crithmoides. Pennard and Mumbles; on rocks in Caswell Bay, and along the coast of Gower; plentiful near Paviland Cave.
 ——— *Helenium*. In pastures about Horton, Pentlegare, Pont nedd Vechn, Glanbrane and Cwm Cromlyn, (Dillwyn).
Pulicaria dysenterica. Between Swansea and Singleton; Kilvey Hill and road to the Mumbles.
Aster Tripolium. Marsh near Neath Canal.
Erigeron acris. Near the Ferry; Llandwr Marsh; Fabian's Bay; Singleton.
Solidago Virgaurea, var. *β. cambrica*. Frequently met with in the woods of Cwm Neath.
Gnaphalium margaritaceum. Near Clydach, in the road-side between Wych-tree Bridge and Neath Abbey, and other places, (Dillwyn).
 ——— *dioicum*. On the mountains above Pont Nedd Vechn and Ystradgunlais, (Dillwyn).
 ——— *sylvaticum*. About Drumma and Glanbrane, and on Markhowell, from which mountain it was brought to me by Mr. Edward Hawkins. Many of the specimens answered to Sowerby's figure of *G. rectum*, and if that is a separate species (which I disbelieve) they most probably belong to it, (Dillwyn).
 ——— *uliginosum*. On Singleton Marsh.
Senecio vulgaris. Everywhere.
 ——— *viscosus*. On the waste a little above high water mark, between the Ferry and the entrance to Port Tennant.
 ——— *Jacobæa* and *aquaticus*. Singleton Marsh.
Chrysanthemum Leucanthemum. Between the Ferry and Port Tennant.

- Chrysanthemum segetum*. Ballast-heap near West Pier.
Pyrethrum Parthenium. Neath Canal and St. Helen's.
 ——— *inodorum*. Common.
 ——— ——— var. *β. maritimum*. About Salt-house Point, and other places by the sea-shore, (Dillwyn).
Artemisia maritima. Near Port Tennant, and on the banks of the Neath Canal.
 ——— *Absinthium* and *vulgaris*. Near Port Tennant, on the shore and near the Ferry.
Tanacetum vulgare. Port Tennant.
Anthemis maritima. Sea-shore near Port Tennant.
 ——— *nobilis*. On rubbish at Penrice, but probably not indigenous, (Dillwyn).
 ——— *arvensis*. Common everywhere.
Achillea Ptarmica. Banks of Neath Canal; Mumbles Road; near Port Tennant; in ditches by canal.
 ——— *Millefolium*. Common everywhere.
Bidens tripartita. Near the Neath Canal.
 ——— *cernua*. Near Singleton.
Carduus nutans. Singleton.
 ——— *tenuiflorus* and *arvensis*. Common.
 ——— *lanceolatus*. Between the Infirmary and Singleton.
 ——— *palustris*. Kilvey Hill and Loughor, common.
 ——— *eriphorus*. Occasionally found on the road-side between Neath and Pyle; and much more common at the eastern extremity of the county, (Dillwyn).
 ——— *pratensis*. Cromlyn Bog.
 ——— *acaulis*. Britton Ferry.
Carlina vulgaris. Banks of the Neath Canal, and Cromlyn Burrows.
Arctium Lappa and *Bardana*. Common.
 ——— *superfluum*. A variety of *Bardana*, so named by my friend Mr. Rootsey; between the Ferry and Port Tennant.
Serratula tinctoria.
Centaurea nigra. Kilvey Hill and Town Hill.
 ——— *Scabiosa*. Kilvey Hill and fields near.
Lactuca virosa. Oystermouth Castle.
Lapsana communis. Near Singleton.
Crepis virens. Town Hill and roofs of houses.
 ——— *paludosa*. On the rocky shore of the Neath river, and about Uscoed Eynon, near Pont Nedd Vechn, (Dillwyn).
Hieracium Pilosella. Near Port Tennant.
 ——— *sylvaticum* and *sabaudum*. Kilvey Hill.
 ——— *umbellatum*. Neath Canal.
Hypochaeris radicata. Neath Canal.
Tragopogon pratensis. Singleton Marsh.
Thrinia hirta. Near Port Tennant.
Leontodon hispidum. A meadow-full of it on this side of Neath.
Oporinia autumnalis. Meadows and pastures, frequent.
Cichorium Intybus. Near Kilvey Hill.

J. W. G. GUTCH.

(To be continued).

ART. XLIV. — *Notices of Books &c. connected with British Botany.*

1. *A Manual of the British Algæ: containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds and of Confervæ, both Marine and Fresh-water.* By THE HON. WILLIAM HENRY HARVEY. London: Van Voorst. 1841. 8vo.

THE beautiful family of plants known by the popular name of *sea-weeds*, has long excited the admiration not only of the mere sea-side rambler, but of many profound botanists. The names of Esper, Lamouroux, Mertens, Agardh, Lyngbye, Kützinger and others on the continent; and of Stackhouse, Turner, Dillwyn, Hutchins, Griffiths, Berkeley, Greville and Harvey in our own country; are especially associated with these plants. It is, however, only within the present century that the algological Flora can be said to have assumed a strictly systematic form. The structure and affinities of the Algæ have, within this period, been carefully examined, their economy investigated, and their geographical position ascertained. The four great genera—*Tremella*, *Fucus*, *Ulva* and *Conferva*, into which Linnæus divided the comparatively few species he was acquainted with, have expanded, in the British Flora alone, into 127 for the most part well-defined genera; and a rigid analysis is at length applied to these as well as to other plants. In Great Britain, as might have been expected from the facilities which her shores present to the student, several works of standard merit have been devoted to their illustration. ‘English Botany’ contains figures (deficient in details) of all the species known at the time of its publication. The splendid ‘*Historia Fucorum*’ of Turner includes all the British species formerly described under the heterogeneous genus *Fucus*; and Dillwyn’s ‘*Synopsis of the British Confervæ*’ contains illustrations of the equally heterogeneous *Conferva*; while in the ‘*Algæ Britannicæ*’ of Greville are given figures and analyses of the modern genera of the inarticulate tribes. Various species are also represented in the same author’s ‘*Cryptogamic Flora*’; and lastly, in point of time, Berkeley’s ‘*Gleanings*’ illustrate many others belonging to the more minute and difficult groups. It was not, however, until the publication of the second volume of the ‘*British Flora*’ in 1833, that the whole of the British Algæ were brought together and described with methodical accuracy by Mr. Harvey, with the exception alone of the *Diatomaceæ*, which were contributed by Dr. Greville. Three years subsequently, the entire algological department of the ‘*Flora Hibernica*’ was executed in a most able manner by Mr. Harvey, and particular attention bestowed on some of the difficult genera, especially *Callithamnion* and *Polysiphonia*. One other work of eminent utility remains to be mentioned—the ‘*Algæ Danmonienses*’ of Mrs. Wyatt (under the superintendence of Mrs. Griffiths), on the plan of that beautiful collection, ‘*Algues de la Normandie, par J. Chauvin*’; but of this publication, as well as of his views regarding the work immediately under consideration, we shall let our estimable author speak for himself.

“The want of a work in the English language, entirely devoted to the British Algæ, in which fuller descriptions should be given than the scope of Hooker’s ‘*British Flora*’ admitted of, and in which all the known species should be included, has long been felt by lovers of this branch of Botany. Had my friend Dr. Greville completed, as was once his intention, his admirable ‘*Algæ Britannicæ*,’ no room would have been left for my humble labours, nor should I for a moment wish to take the subject out of such able hands. But his work has unfortunately stopped short with the “inarticu-

late" tribes, nor has he at present any intention of resuming it. The task has consequently fallen on my shoulders, and my object will be gained and my ambition fully satisfied, if, in the following pages, I have succeeded in affording any assistance to the researches of my fellow-students. I could have wished, and indeed had intended, that the work should be illustrated with figures, at least of the genera; but my limited stay in Europe did not afford time to prepare them, and it does not now appear desirable to delay the publication till they could be got ready. However they might have added to the beauty of the book, the student will experience little loss by their omission, who takes this Manual for what I wish it to be, a companion to the 'Algæ Danmonienses, published and sold by Mary Wyatt, Dealer in Shells, Torquay;' a most important work, now extending to four volumes, with a supplement, composed of *specimens* of 234 species, beautifully dried and correctly named. These volumes furnish the student with a help, such as no figures, however correctly executed, can at all equal,—nature's own pencil illustrating herself."

Of this 'Manual' we do not think it too much to say, that Mr. Harvey alone, among British botanists, was prepared to undertake it. For many years the Algæ, as we have seen, were his peculiar favourites, and he had carefully studied those groups which had been most imperfectly described by other authors.* His volume contains an ample Introduction, in which he considers the structure, habits and uses of these plants; and the descriptive portion is preceded by a Synopsis of the Families and Genera.

The general arrangement is that proposed by the author in the 'Flora Hibernica;' the families being primarily grouped under four series, as follows; the first three being chiefly characterized, as their names indicate, by the colour of their seeds.

Series I. MELANOSPERMEÆ, contains the families Fucoidæ, Lichinæ, Laminiaræ, Sporochnoidæ, Dictyotæ, Ectocarpeæ, Chordariæ.

Series II. RHODOSPERMEÆ.—Gloiocladeæ, Gastrocarpeæ, Spongiocarpeæ, Furcellariæ, Floridæ, Ceramiæ.

Series III. CHLOROSPERMEÆ.—Lemaniæ, Batrachospermeæ, Chætophoroideæ, Confervæ, Siphonæ, Oscillatoriæ, Ulvaceæ, Nostochinæ, Byssoidæ?

Series IV. DIATOMACEÆ.—Desmidiæ, Fragillariæ, Styllariæ, Cymbellæ.

It will be observed that Mr. Harvey has altogether done away with the old method by which the Algæ were primarily disposed according to the articulate or inarticulate character of the frond. This is surely a great improvement, as many forms occur which are strictly intermediate, by uniting both characters in the same individual.

We observe under Sporochnoidæ that *Striaria Grevilliana* of Pollexfen is reduced to a variety of *Sporochnus rhizodes*. This very singular plant we have ourselves examined, and are not prepared to question the decision at which the author has arrived; but the examination has led us to the conclusion that *Sp. rhizodes* itself might with propriety be placed in the genus *Striaria*, the character being slightly modified. A new species of *Ectocarpus* is described, which was discovered at Ballycastle by Miss Hincks; besides *Ect. fasciculatus* and *pusillus*, for the first time made known in the 'Algæ Danmonienses.'

* Mr. Harvey's algological researches have not been confined to the British Flora. Vide his 'Genera of South African Plants,' and various papers in botanical periodicals.

The genus *Naccaria*, *Endl.* (*Chætospora*, *Ag.*), placed among the *Ceramieæ* by Agardh, and among the *Florideæ* by Greville, is brought under the *Gloiocladeæ* of Harvey. The author observes that the "habit is completely that of *Gloiosiphonia* and *Mesogloia*. The membrane, too, of the periphery, is formed of exceedingly minute, longitudinal fibres, cohering together. May not *Naccaria* therefore be regarded as a *Mesogloia*, wanting the verticillate filaments, except in the ramuli?" Our readers will recognise this plant as the rare *Fucus Wiggii* of Turner.

A plant of considerable interest, and which has been the occasion of a good deal of epistolary controversy, we find raised at length to the rank of a species. The Alga we allude to is *Fucus alatus*, γ . of *Turner*, (*Delesseria alata*, β . *angustissima*, 'Brit. Flor.'). It has been named *Gelidium*? *rostratum* by Mrs. Griffiths, and is assuredly quite distinct from *Delesseria alata*. We believe that all the mistakes which have arisen with respect to this subject, have been caused by very narrow varieties of *Del. alata* having been mixed with, or distributed instead of the true plant. It is remarkable that although found in considerable abundance in Morayshire, by Mr. Brodie, upwards of thirty years ago, it has never been collected by any other botanist.

We have already observed that Mr. Harvey is known to have investigated the *Ceramieæ* with great care; and we find abundant evidence of this in the work before us. It would be impossible to notice the many corrections which his observant and accurate eye has led him to make in this difficult family. We are truly glad to find that he has united *Polysiphonia Agardhiana*, *badia* and *denudata* with *Pol. atrorubescens*. *Pol. Lyngbyæi*, *Harv.* in 'Brit. Fl.' turns out to be a new species, and is now named *P. Grevillii*. We have also a new species named *P. Griffithsiana*, and two Irish ones named by their discoverer, Mr. Moore, *P. affinis* and *atro-purpurea*.

The most interesting addition, however, to the British Flora in the whole volume, is the exquisitely beautiful *Thorea ramosissima*, no native specimens of which exist, we believe, in any herbarium. But the late Mr. Templeton has left a note of its having been discovered "in a pool in a bog in the Co. Donegal mountains, going from Letterkenny to Dumfanaghy." The plant is too remarkable, and Mr. Templeton's accuracy too well known, to admit of any doubt in regard to it.

We shall not dwell upon the *Chlorospermeæ* and the *Diatomaceæ*, more than to bear our cordial testimony to the care which has been bestowed upon them. These series contain the more obscure families, and doubtless much remains to be done for their farther elucidation. In the genus *Conferva* itself, as it now stands, characters will, we feel assured, be detected, for affording generic subdivision. It is in this part of the work that we feel the want of pictorial illustration; and we trust that when Mr. Harvey shall be called upon for another edition, he will be enabled to add those plates which we know he was most anxious should accompany his excellent Manual. It is indeed a work which must immediately become the text-book of every student of our marine Botany.

2. *Collectanea for a Flora of Moray: or, a List of the Phænogamous Plants and Ferns hitherto found within the Province.* Elgin: printed by Alex. Russell, Courant Office. 1839.

WE are always disposed to give a hearty welcome to a local Flora, whatever may be the district to which it relates; but the present work possesses peculiar claims to

our kindest regard, for independently of the value of the *Collectanea* in a botanical point of view, they possess additional interest in our eyes from the circumstance that in almost every page we meet with the names of localities, once honoured with the presence of Scotland's Burns, and immortalized by the genius of our own Shakspeare.

Sir J. E. Smith, in his 'Tour on the Continent,' has remarked that "a plant gathered in a celebrated or delightful spot, is, like the hair of a friend, more dear to memory than even a portrait, because it excites the mind without presuming to fill it." The truth of this observation will, we think, be acknowledged by all who have been in the habit of seeking the botanical productions of any country, in their own peculiar habitats; and the remark applies even to the more common and less beautiful plants of a district, as well as to localities with no particular historical or poetical associations attached to them. But with how much deeper interest would such a plant as *Alchemilla alpina* be invested, if gathered at "the Fall of Foyers," perhaps on the very spot where Burns stood when he wrote in pencil the beautiful lines beginning—"Among the heathy hills and ragged woods"! Again, the pleasure of botanizing in the woods of Cawdor and Gordon Castles, and of collecting there *Pyrola media* and *secunda* or *Circæa alpina*, must surely be heightened by the remembrance that Burns himself had wandered in these very woods, since he tells us that he "crossed the country to Fort George, but called by the way at Cawdor, the ancient seat of Macbeth; there I saw the identical bed in which, tradition says, King Duncan was murdered;"—and that his well-known verses—"Streams that glide in orient plains," &c., were written when reluctantly relinquishing the kindness and hospitality of the noble owners of "Bonnie Castle Gordon." Then again, Brodie House and its Laird being so frequently mentioned in the *Collectanea*, we cannot fail to remember that Burns slept at Brodie House; and that we read in his journal—"Mr. Brodie tells me the muir where Shakspeare lays Macbeth's witch-meeting, is still haunted—that the country folks won't pass by night." This *muir* we presume to be "The 'Blasted Heath,' near Brodie;" if so, the midnight revels of Shakspeare's gay old ladies seem to have scared away all the country *plants* as well as country *folks*, for we find but one recorded as growing there—*Orobis tuberosus*, var. *tenuifolius*. Others of the Macbeth localities are also very frequently mentioned, as, for instance, Forres and its castle-hill; but we must leave poetry and poetical associations, and endeavour to give our readers some idea of the botanical contents of the work before us.

We are quite of opinion that if the rules laid down in Mr. Watson's excellent "Observations on the Construction of a Local Flora" ('Mag. of Zool. and Bot.' i. 424) were generally known and strictly adhered to, the scientific value of local Floras and lists of plants would be greatly enhanced, inasmuch as a greater degree of precision being followed in the compilation of such works, increased confidence in their accuracy would be felt on the part of those who have occasion to consult them. Acting therefore on this opinion, we think we cannot do better than to transfer these rules to our own pages, both with the view of bringing them more immediately under the notice of our readers, and also to exhibit from the *Collectanea* some examples of the practical application of the spirit of the rules. We must however premise that the work is not, strictly speaking, a local Flora, but simply such a carefully executed list of plants as we should be glad to see drawn up for every botanical district in the kingdom; by the circulation of which, as the compiler observes in the Preface, "among those who take an interest in the Botany of the North of Scotland, it is intended to show the result of inquiries hitherto made within the Province of Moray, and

to afford a nucleus around which future discoveries and observations may be collected."

Rule "First, a local Flora, we take it, ought to relate to a definite area, and not pretend to include a wider space than has been really and well investigated."—(Mag. Zool. & Bot. i. 426).

"Secondly, we should have a full list of species and the more remarkable varieties; the nomenclature being adapted to that of the standard Floras which relate to Britain generally; generic and specific characters, descriptions and references being altogether omitted."—(Id.)

"Thirdly, we should desire to see the degree of scarcity or abundance of each species mentioned, in as close an accordance as possible with some fixed scale."—(Id. 427).

"Fourthly, the time of flowering, and the soil and situation affected by each species, should be given from actual observation."—(Id.)

"Fifthly, the general distribution of each species, and the localities of the rarer ones, are to be precisely shown."—(Id. 428).

"Sixthly, we should recommend the history of the species to be attended to."—(Id.)

We will now illustrate these rules by examples from the 'Collectanea,' beginning with the first.

After describing the boundary lines of "*The Province of Moray*, or more strictly, the portion of Scotland kept in view while drawing up this List," the compiler proceeds,—*"In extent and locality the district here selected very nearly corresponds to the 'Elgin, or Eighth Botanical District of Scotland' as laid down and illustrated in a valuable paper lately read by Mr. Brand before the Edinburgh Botanical Society. In a district so extensive as this, and so little explored (particularly in the southern and western portions) there must be plants yet to be discovered, and many facts to be recorded regarding the distribution of those already met with. The most effectual method by which these objects could be accomplished, would be to institute separate and careful examinations of the several sections—such as parishes and other well-defined districts—into which the Province might be divided. And for this purpose this List, if interleaved, it is hoped will prove highly useful."*—Preface, iii.

That the conditions of the second, third and fifth rules have been as far as possible complied with, will be evident from the following observations and extracts. The catalogue contains neither generic nor specific descriptions nor references, but gives the scientific names and localities of all the species discovered within the district, up to the time of publication.

"There are 724 species in the Catalogue of Moray Plants, of which 65 are marked (?) as doubtfully native, and 70 (‡) as certainly introduced.

	Dicotyl.	Monocotyl.	Acotyl.
Genera ...	269	64	12
Species ...	523	169	32

—p. 30.

"Sir W. J. Hooker's 'British Flora,' 4th edition, is followed in the nomenclature and arrangement of the Collectanea. The signs used [to denote the comparative rarity and abundance of the species within the district] are those employed by the Edinburgh Botanical Society, [in the 1st edition of their Catalogue]. After these signs the provincial names are added to some of the more common plants. Localities are occasionally given for species which are very far from being rare; but where "&c." is not added, all the known stations are almost invariably inserted. The dates of discovery are stated in many instances; and, when no other authority is quoted, the compiler himself has found or gathered the plant, in the specified localities."—Pref. v.

This perhaps is the proper place to notice one feature of the Collectanea, by which its value to all who feel an interest in the geographical distribution of British plants is greatly increased. "At the foot of the page, and *under a line*, a few species are introduced as being, from their ascertained range in Britain, likely to form early additions to the Flora of Moray. It is on this account, and with the view of noting their localities in the adjoining districts, that they have been placed here. A comparison, however, of Lists I. and II. will show the plants, which are most probably undiscovered denizens, as they contain the species found on either side, but not yet within the Province."—Pref. v. The lists referred to are:—

"I.—*List of Plants, not observed in Moray, but found in Aberdeenshire, or in the eastern part of Banffshire.*" This List contains 89 species.

"II.—*List of Plants not observed in Moray, but found on the west side of Scotland and north of Oban and Iona, or in the counties north of the Caledonian Canal.*" Containing 69 species, 17 of which are common to both lists. Two other lists are also given; one of 66 species, not uncommon within sixteen miles of Edinburgh, but either not observed or very rare in Moray; and the other of 42 species of Moray plants which are not found within sixteen miles of Edinburgh.

With regard to the fourth rule, the omission of the times of flowering is perhaps of little importance, although they would have formed an interesting addition to the Collectanea; but we confess that we should have been glad to see some notice of the geological relations of the species growing in the district. On this subject the compiler observes:—

"In such a treatise as this, it is usual to give a sketch of the geological structure of the district. Such would have been attempted, had there been a sufficient number of facts ascertained to show that there was here really any connexion between the vegetation and the underlying formations. The distance from the shore, and the elevation above the sea level, seem to influence the distribution of the species far more than the mineralogical character of the strata over which they grow. Besides, throughout the Province generally, and especially in the lower part of it, there is such a vast accumulation of alluvial matter interposed between the rock and soil, that the nature of the latter and of its vegetation depends mainly upon the circumstance of the alluvial deposits or subsoil being mossy, gravelly or clayey. In a few spots within the Province, such as Craighalkie near Tomintoul, where the beds of limestone, subordinate to the primary stratified formations, crop out, there are occasionally to be found several species of plants, whose range is evidently circumscribed within the influence of the calcareous soil. *Avena pratensis* seems confined to soils of this nature, changing its habit as the proportion of their ingredients differs. Where there is a superabundance of limy matter the plant often assumes a glaucous and rigid appearance, which has probably originated the *A. alpina*, and causes it still to hold a place as a distinct species."—Pref. iv.

In the above extract there is much to confirm our own views respecting the geological distribution of plants. We are of opinion that it is by the surface soil *in* which they grow that plants are affected, and not by the rocks or strata *over* which they occur, unless the latter happen to lie so near the surface as to affect the surface soil, by altering its constituent parts or modifying their proportions. We have no doubt that elevation has considerable influence in the distribution of species; but we cannot help suspecting that the character of the soil of a given district exercises quite as powerful an influence. *Avena pratensis* and *alpina* mentioned above, confirm the truth of our position. These

two plants, whether distinct species or merely different states of the same species, are confined to a calcareous soil, yet each has its own favourite modification of such a soil, and neither of them seems to occur except where the subordinate beds of limestone *crop out*. But our limits prevent our pursuing this interesting enquiry any farther at present.

The subject recommended to be attended to in the sixth rule is an exceedingly important one, and in one of its divisions — that relating to variations caused by change of situation or season, closely connected with the fourth. We however could not expect any information of this nature in a catalogue, whilst a local Flora would scarcely be complete without it.

A “Table of Altitudes within or on the borders of the Province of Moray,” and extracts from meteorological journals kept at Elgin and Kingussie, nearly the most distant points of the Province, are very valuable additions to the Collectanea. The altitudes vary from 54 to 4390 feet. A comparison of the annual means of three years’ observations of the thermometer and rain-gauge, at the two stations, exhibits a higher mean temperature by 2·8212 at Elgin than at Kingussie; the mean depth of rain at Kingussie exceeds that at Elgin by 6·860 inches.

In a recent number (Phytol. 94) was a notice of Professor Balfour’s discovery of *Monotropa Hypopitys* within this province; and in our present number are some further remarks on this interesting addition to the Scottish Phænogamic Flora.

We must now take leave of the ‘Collectanea for a Flora of Moray;’ and in so doing would again express a hope that the Botany of every district in the kingdom may ere long be equally well illustrated.

ART. XLV.—*Varieties.*

80. *Remarks on British Carices.* In my last note (Phytol. 77) I made no enquiry as to how far the Carices in question are distinct as species; but it having been said (Id. 27) that there are figures of the fruit and its appendages of all the British Carices, if these Carices be British, we should certainly expect to find them there. Of *Carex stictocarpa* and *angustifolia* Hooker tells us he knows nothing, except what is said in Smith’s ‘English Flora;’ and if Smith be correct in his descriptions, and I have no reason to believe otherwise, *Carex stictocarpa* is a very different plant from *C. recurva*. Of the latter I possess 79 varieties, and none of them will at all answer to the description given in ‘English Flora’ or the figure in ‘English Botany.’ What Hudson’s *Carex recurva* might be I know not, but I consider *C. angustifolia* quite as distinct from *cæspitosa* as either *C. stricta*, *aquatilis* or *acuta*, although Hooker, in the 1st edition of his ‘British Flora,’ placed *acuta* in quite another division of his Carices. If Sir W. J. Hooker had ever seen Schkuhr’s beautiful figure of *C. tenella*, I think he would never have said “May it not be a starved state of” *C. remota*. The two stamens of *C. tenella* I consider to be alone sufficient to keep it distinct as a species, to say nothing of its very smooth fruit, which is said to be convex on each side, with an entire beak. A fruit like this is very much at variance with Mr. Leighton’s description of *Carex remota*, wherein he says,—the fruit is “plano-convex, ribbed, margins rough, orifice bifid.”—(Flor. Shrop. 452). Mr. Leighton further says, speaking of the convex side of the fruit, “with a cord-like mass of ribs which proceed downwards from the bi-

fid orifice to a little above the middle, where it diverges into five ribs, which again converge and unite a little above the base." Now I am at a loss to know how any one could ever think that the starving of a plant would make all these changes of character;—to make the five-ribbed fruit of *Carex remota* become very smooth, and to turn plano-convex into one that is convex on both sides, and lastly its bifid orifice into one that is entire; not to say anything about the number of stamens, which, in the days of Linnæus, would almost have removed it into some other class. Of *Carex Mielichhoferi* I know nothing, except from the figure in 'English Botany,' and what is said by Smith in 'English Flora;' but of *Carex speirostachya* I possess specimens from Wales and others from near Lancaster. The plant is certainly a very different one from *C. fulva*, and a section of the ripe nut of *C. speirostachya* would have been very conspicuous amongst Mr. Leighton's figures of those parts. Among the strange forms that I have gathered this season, I see there is *Carex Ecklonii*, Kunze, 'Supplement zu Schkuhr's Riedgräzer (Carices), tab. 5; but how far this is distinct as a species, I will leave to the judgment of others. In the last edition of the 'British Flora,' *Carex speirostachya* is referred as a variety to the *C. fulva* of Goodenough. Goodenough tells us that his *C. fulva* is only a variety of *C. flava*; Leighton tells us that *C. flava* and *Æderi* are the same; and if I add the *C. Ecklonii* of Kunze to the list, we shall see that it will take *Carex speirostachya*, *fulva*, *flava*, *Æderi* and *Ecklonii* to make *Carex flava*: now I should think, for my own part, that these are sufficient to make one species, if not, we may add the *Trasus Hostianus* of Gray, &c.—*Samuel Gibson; Hebden Bridge, October 18, 1841.*

81. *Remarks on the List of Plants*, (Phytol. 77). I embrace this opportunity of making a few remarks on the list of species and varieties said to be new to the British Flora, and described in Leighton's 'Flora of Shropshire.' For my own part I find (with the exception of the Rubi) very little that is new in this list; for surely we cannot consider such plants as *Oxalis Acetosella* β . *purpurea* new to the British Flora, since we find it mentioned in the fifth edition of Withering's Botany, as growing in a lane between North Ofram and Halifax; but that locality has long been destroyed; the plant however was rediscovered about six years since by Mr. Riley of Halifax, about a mile from the place mentioned by Withering. Next we find the plant mentioned by Gray in his work, at page 631, where he says—"plant small, rather villous, petals bluish-purple." Again we find in Smith's 'English Flora,' at page 323, flore purpureo, Dill. in Raii Syn. 281. *Ranunculus fluitans* and *tripartitus*, we received descriptions of twenty-one years ago in Gray's Botany. The *Hypericum tetrapterum* of Leighton is *Hypericum quadrangulum* of Smith, &c., so that we have nothing new in that except the name; *Hypericum maculatum* I have not been able to find in Mr. Leighton's work.—*Id.*

82. *Avena alpina*, (Phytol. 75). In reply to Mr. Simpson's note on *Avena alpina*, I would say that the plant was known to Mr. Baines as having been found in the county, as I gathered the plant, in company with Mr. Baines, in June, 1836, about two miles from Tadcaster. The reason of its not appearing in the Yorkshire Flora is that we do not consider it distinct as a species from *Avena pratensis*, as we have examined numerous specimens, and find none of the characters that are laid down by Hooker to be constant. The plant I believe to be a very common one, as I received specimens last season from Buxton in Derbyshire, and from Wales; I also received specimens from the Yorkshire side of Teesdale. In addition to the above localities, I have a specimen of *Avena alpina* which I gathered near Settle in 1838. In order to

show that Mr. Baines and myself are not alone in considering *Avena alpina* and *pratensis* to be the same species, I copy the following from a note that I received from Mr. Tatham a short time ago. "Dost thou think there is any real difference between *Avena pratensis* and *alpina*? If the panicle being compound or simple is any distinction, we have them both, but I think they are one and the same." Mr. Tatham further says in a note dated September 9, 1841, "I do not think the roughness or smoothness of the sheaths of *Avena alpina* is at all to be depended on, for I have seen both extremes in the same tuft."—*Id.*

83. *Sedum rupestre*, (Phytol. 68). Your correspondent says "no doubt introduced originally." Why he should suppose so I know not. The plant is by no means local in its distribution upon the rocks, and frequently occurs in the most inaccessible parts. —*Leo. H. Grindon; Manchester, October 20, 1841.*

84. *Habenaria chlorantha*, (Id. 70). The species which I have always considered to be the *bifolia*, is very common in woods and shady places about Bristol. Near Butcombe, Somersetshire, as well as at Horfield and Stapleton, it grows in most luxuriant profusion. The *chlorantha* I have seen but once, viz. under Cook's Folly—one of the localities quoted for it. Does it really deserve to rank higher than as a variety of *H. bifolia*?—*Id.*

85. *Anagallis cærulea*, (Id. 76). I thought botanists were long since agreed as to this plant being only a variety of *A. arvensis*. It grows in cornfields upon the lias at Knowle and Horfield, near Bristol, and *only on the lias*, never appearing elsewhere with blue flowers, or retaining its colour when sown in ordinary garden soil, as I have myself proved.—*Id.*

86. *Equisetum fluviatile*. I gathered a curious variety of this plant in August, 1841, on the bank of the Manchester and Sheffield railway, near Glossip. This specimen was leafy and in good fruit; the catkin was topped by a prolongation of the frond about twelve inches in length. Mr. Francis, in his 'History of British Ferns,' mentions a similar specimen having been gathered near Bangor, in 1836. —*Joseph Sidebotham; Manchester, November 4, 1841.*

87. *Plants observed in the Neighbourhood of Shoreham, Sussex.* During the early part of July, 1838, my brother and myself spent some days at Shoreham, on the coast of Sussex, principally with the view of collecting a few plants from that locality. Amongst the great mass of shingle thrown up by the sea, we found *Vicia lutea* very abundant. *Galeopsis Ladanum*, specimens very small, scarcely exceeding 6 inches in height. *Glaucium luteum*, abundantly displaying its large bright yellow flowers to the saline breeze. A few solitary plants of *Crambe maritima* (which had not flowered that season) between the pier-head and the preventive station; and in the same locality we observed a few patches of *Crithmum maritimum*, just coming into flower. *Sedum anglicum*, plentiful, displaying its beautiful white starry flowers out of reach of the shingle; as was also the case with *Statice Armeria*, *Frankenia lævis*, *Arenaria marina* and *Ervum hirsutum*. *Ruppia maritima*, very plentiful in the small pools of salt water in the marshes adjoining, (towards Worthing); and on their margins *Triglochin maritimum*, *Ænanthe pimpinelloides*, *Glaux maritima* and *Juncus acutus*, and where the tide flows over, *Salicornia herbacea* and *Atriplex portulacoides*, very abundant. At the harbour's mouth, against the piers, we found a few plants of *Cakile maritima* and *Statice spathulata*. *Centaurea Calcitrapa* abundant. *Linum angustifolium* very abundant at the foot of the cliffs towards Brighton, near Kingston. *Rottbollia incurvata*, on the sands just above high-water mark. *Chenopodium maritimum* and *Silene*

maritima everywhere. *Coronopus didyma*, in various places by the road sides. Although we very carefully examined the whole line of beach between Brighton and Worthing, we could not find a single specimen of *Trifolium stellatum*: the only habitat, as stated in the 'Botanist's Guide' &c. is "between the sea and Shoreham Harbour in the greatest profusion," and supposed to have been originally introduced in ballast. I should very much wish to know if any specimens have been taken from this station of late years. I have specimens in my herbarium from this locality, collected upwards of thirty years ago; the great alterations that have taken place at the entrance of the harbour, by the erection of piers &c., have in all probability destroyed the habitat. On our return from Shoreham we observed *Sambucus Ebulus* very plentifully but not in flower, by the sides of the road, against the toll-gate at Bramber and in the fosse at the foot of the old castle. *Iris fetidissima*, very plentiful and in full flower.—*J. D. Salmon*; *Godalming*, November 8, 1841.

88. *Cyperus longus* in the Isle of Wight. It will, I have no doubt, interest the readers of 'The Phytologist' to know that I have detected "the tall and graceful *Cyperus*," as my friend the Rev. G. E. Smith very justly calls it, in three distant localities within the island. In two of the above stations it is abundant; in the third, a wet meadow below Carisbrook Castle, on the S.E. side, very rare, a specimen or two only having been gathered. I first detected *Cyperus longus*, which I had always calculated on eventually finding with us, quite accidentally, in a low meadow at Apes Down,* between Carisbrooke and Swainston, the seat of Sir Richard Simeon, Bart., on whose land it grows, and within a mile of the house on the Carisbrooke road, at the bottom of a steep pitch, the meadow being on the right coming from Carisbrooke, and nearly opposite a small farm. This was in 1839, and the next year I found the plant in still greater quantity, covering at least half an acre, in a marshy meadow through which runs a little stream, between the new lighthouse at St. Catherine's Point, and empties itself into the sea at Old Castle Point by Puckaster, the station being much nearer the latter, and below the farm of Little Buddle, by which there is a path that conducts almost to the spot, within ten minutes walk of the Sand-rock Hotel. The *Cyperus* begins to flower about the middle of August, but is in its greatest perfection a month later, after which it is usually mown down by the occupier of the land, as green fodder for his cattle, to which this plant, from its sweetness, is very acceptable. — *Wm. Arnold Bromfield*; *East Mount, Ryde, Isle of Wight*, November 8, 1841.

89. Note on *Tamarix gallica*, (Phytol. 91). Pulteney long since gave Freshwater Gate as a habitat [for this plant], but I could never find it there, except as a cultivated tree, by the hotel, a condition which, of course, excludes it entirely from notice amongst our indigenous productions. As far as my own observation goes, the genus *Tamarix* should be expunged, with *Staphylea* and some others, from the British Flora, since I cannot ascertain that it is even naturalized, strictly speaking, in any of its recorded stations. At Hastings it certainly does not grow spontaneously, though stated to do so by Goodenough, and it has but too evidently been planted at St. Michael's Mount and other places in Cornwall, as well as at Languard Fort, and in every other spot where I have had an opportunity of seeing it.—*Id.*

* This place must not be confounded with Apse Heath, or Apse Castle, which are in a different part of the island, though the orthography was probably once the same in all.—*W. A. B.*

90. *Flora of the Isle of Wight*. Anxiety to render as complete as possible a Flora of this island, on which I have been for some years past, and am still engaged, and a desire to verify personally all the species and their respective stations, lead me earnestly to request from such gentlemen as have botanized in the island, a communication of their discoveries, which I shall at all times feel most happy and grateful to receive and acknowledge, and most particularly so when accompanied by specimens, however small, of the plants found by them.—*Id.*

91. *Discovery of Monotropa Hypopitys at Cawdor, Nairnshire*. Dr. Balfour lately paid me a hurried visit, on his return from a botanical excursion to Skye and the outer Hebrides, when he was so fortunate as to make a very interesting addition to the Flora of this district, by the discovery of *Monotropa Hypopitys* in the wood of Cawdor, about a mile from here : I may, I believe, call it an addition to the Flora of Scotland, for Mr. Watson does not mention it in his very accurate 'Botanist's Guide,' as occurring in Scotland. Dr. Balfour could get only a single specimen ; some days afterwards I succeeded in getting a few more, growing under birch and oak, where the ground was thickly covered with a moss (a species of *Hypnum* I believe), so densely indeed that the grass was almost choked with it, a blade only being to be seen here and there. The specimens of *Monotropa* were generally about a yard apart, sometimes two being together. I could trace the fibres of the *Monotropa* a very little way beyond those of the moss, and did not observe any connection between them and the roots of the oaks and birch, the only trees growing near them ; and am of opinion that if they draw any part of their nourishment from the roots of the neighbouring trees, they certainly do derive considerable support from the vegetable soil in which they grow.—*Wm. Alex. Stables ; Cawdor Castle, Nairn, November 10, 1841.*

92. *Errata in Mr. Flower's List of some of the rarer Bristol Plants*, (Phytol, 68). Page 68, line 13, for *Braston* read *Bourton* : lines 37 & 38, for *Peupole* read *Penpole*. Page 69, line 21, after *Lotus tenuis*, add "Meadows about Sea Mills." Having studied the characters of this plant for the last three seasons, I cannot consider it anything more than a variety of *Lotus corniculatus*. Page 70, line 22, after *Allium* add *ca-rinatum*.—*Thos. B. Flower ; 8, Surrey Street, Strand, November 13, 1841.*

93. *Lastræa Thelypteris*. I have lately observed this interesting fern, in great plenty, on Birle and Glastonbury Moors, Somerset. I believe it is by no means frequent in this county.—*Id.*

94. *Phyteuma orbiculare*. This plant occurs in the greatest abundance on Roundway Down, near Devizes, Wilts, in company with *Asperula cynanchica*, *Thesium linophyllum*, *Juniperus communis* and *Spiræa Filipendula*.—*Id.*

95. *Cuscuta Epilinum*. On flax in plenty, between Comptin Martin and Ubley, also at West Harptree, on the road to Cheddar, Somerset.—*Id.*

96. *Arabis stricta*, (Phytol. 68). I have much pleasure in thinking the habitat of *Arabis stricta* on St. Vincent's rocks, may still be preserved. Some years since I sowed a quantity of seed in spots whence I had previously gathered plants, and have again done so this year. I wish it to be particularly understood that my cultivation has been confined to known spots, and to St. Vincent's Rocks *alone*. For doing this I have been gratified by receiving thanks from the most distinguished botanist of the day.—*Fredk. Rupert ; Brislington, Nov. 17, 1841.*

97. *Corrections and Additions in Mr. Mill's List of Plants in the Isle of Wight*, (Phytol. 91). Line 34, for *Triticum Nardus* read *T. junceum*. *Tamarix gallica*, (line 37) has most probably been introduced into the locality near Yarmouth. *Poa bulbosa*

(line 42) must be erased from the list: the mistake arose from an imperfect specimen of a grass from Alum Bay having been compared by a friend with continental specimens of *Poa bulbosa*, in its viviparous state. The Alum Bay plant was afterwards found to be an *Agrostis*. To the plants growing in salt marshes at Yarmouth, add *Triglochin maritimum* and *Potamogeton pectinatum*. To those of the New Forest add *Triglochin palustre*.—*J. S. Mill; Kensington, December 20, 1841.*

98. *Erratum.* (Phytol. 111), line 19, for Entomol. No. 90, read Entomol. page 159.

99. *Death of Professor Don.* It is our painful duty to announce to our readers the loss which Botany has sustained in the death of our esteemed and lamented friend,—Mr. David Don. His merits as a botanist are abundantly testified by his numerous papers and essays published in periodicals or transactions during the last twenty years. His worth as a man requires a more particular notice. It has never been our lot to meet with a botanist equally able and willing to afford information to the student: his bibliographical knowledge was most extensive; so much so indeed, that on the name of an author being mentioned to him, he would instantly inform the enquirer of all the works written by that author, of the value of their authority, their dates, principal contents, and the library in which they might be found; and the slightest enquiry would immediately elicit a detailed statement of every serviceable fact relative to the subject suggesting it. Nothing could exceed the prompt and cheerful manner with which he entered into all debateable questions relating to botanical nomenclature, or his rigid impartiality in asserting the right of priority: nothing could exceed the kindness and zeal with which he assisted every student, however complicated or however trite the subject laid before him. Indeed we may safely say, that in him the botanical enquirer has suffered a loss never to be repaired.—

“We ne’er shall look upon his like again.”

Mr. Don was born at Forfar on the 21st of December, 1779; and his descriptions of new and rare native plants found by his father in Scotland, proves Mr. Don’s early proficiency in the study of Botany. He came to London in 1819, and in 1822 was elected librarian to the Linnean Society, an appointment which he held during the remainder of his life. In 1836 he was appointed Professor of Botany at King’s College, and commenced his first course of lectures in the May of the same year. He died at the house of the Linnean Society, at 1 o’clock in the morning of the 8th of December, 1841, after a painful and lingering illness of upwards of twelve months, and was buried on the 15th at the Kensale Green Cemetery. In addition to the immediate relatives of the deceased, the funeral was attended by Dr. Brown, Sir W. J. Hooker, Messrs. Bowman, Forster, Bentham, Bennett, Anderson and Smith.

We insert below a chronological list of Mr. Don’s works, so far as we have been able to ascertain them.

Descriptions of new or rare native plants found in Scotland by the late Mr. George Don, of Forfar. Printed in the *Wernerian Memoirs*, iii. 1821.

Descriptions of new plants from Nepaul, in the herbarium of A. B. Lambert, Esq. *Wern. Mem.* iii. 1821.

Monograph of the genus *Saxifraga*. *Linnean Transactions*, xiii. 1822.

Illustrations of the natural family of plants called *Melastomaceæ*. *W. Mem.* iv. 1823.

Monograph of the genus *Pyrola*. *Id.* v. part 1. 1824.

Descriptions of nine new species of *Carex* from Nepaul. *Lin. Tr.* xiv. pt. 2. „

Description of *Cowania*, a new genus of plants; and of a new species of *Sieversia*. *Id.* xiv. pt. 3. 1825.

- Prodromus Floræ Nepalensis. 1825.
- On the classification and division of Gnaphalium and Xeranthemum, *Lin. Wern.* 1826.
- Mem. v. pt. 2. 1826.
- Description of the genus Malesherbia of the 'Flora Peruviana.' Edinburgh New Philosophical Journal. 1827.
- Description of Lophospermum, a new genus of Scrophularinæ. *Lin. Trans.* xv. pt. 2. 1827.
- Descriptions of Columellia, Tovaria and Francoa. *Ed. New Phil. Journ.* 1829.
- Observations on Philadelphææ and Granatææ. *Id.* "
- On the affinities of the Empetrææ. *Id.* "
- On the characters of Darwinia, Brunsfelsia, &c. *Id.* "
- Attempt at a new classification of the Cichoraceæ. *Id.* "
- On the affinities of Vellozia, Glaux, &c. *Id.* 1830.
- Monograph of the family Cunoniaceæ. *Id.* "
- On the origin & nature of the ligulate rays in Zinnia &c. *Lin. Tr.* xvi. pt. 2. "
- Descriptions of the new genera and species of Compositæ, belonging to the Floras of Peru, Mexico, and Chile. *Id.* 1830.
- On the characters &c. of certain genera of the Flora Peruviana. *Ed. New Phil. Journ.* 1831-2.
- On the Rhubarb of commerce, the purple-coned Fir of Nepaul, and the Mustard-tree. *Id.*
- Descriptions of some new species of Malesherbia, Kageneckia, Quillaja &c. *Id.* 1832.
- Noté on the Cow-tree of the Caraccas. *Id.*
- On the characters and affinities of the genus Codon. *Id.* 1833.
- On the connexion between the calyx & ovarium in certain Melastomaceæ. *Id.* "
- On the plant which yields the Gum Ammoniacum. *Linn. Trans.* xvi. pt. 3. "
- On the Tropæolum pentaphyllum, *Lam.* *Id.* xvii. pt. 1. 1834.
- Additional Observations on ditto. *Id.*
- On the æstivation of certain plants, formerly referred to Cinchona. *Id.* "
- New arrangement of the Ericaceæ. *Ed. New Phil. Journ.* "
- On the anomalous structure of the leaf of Rosa berberifolia. *Id.*
- Remarks on some British Ferns. *Linn. Trans.* xvii. pt. 3. 1836.
- Descriptions of five new species of Pinus from California. *Id.* "
- Descriptions of Indian Gentianææ. *Id.* xvii. pt. 4. 1837.
- Descriptions of two new genera of Coniferæ. *Id.* xviii. pt. 2. 1839.
- Description of a new genus of Bignoniaceæ, (Catophractes). *Id.* xviii. pt. 3. 1840.
- Descriptions of the Indian species of Iris. *Id.*
- Account of the Indian species of Juncus and Luzula. *Id.*
- Monograph of the genus Disporum. *Id.* xviii. pt. 4. 1841.
- Monograph of Streptopus, with the description of a new genus (Prosartes) separated from it. *Id.*
- List of the plants collected by Mr. Fellowes in Asia minor, with descriptions of the new species. 1841.
- The new series of Sweet's British Flower-Garden, commenced about 1830.

ART. XLVI.—*Proceedings of Societies.*

LINNEAN SOCIETY.

November 16.—Edward Forster, Esq., V.P., in the chair. Specimens of a hybrid *Linaria*, found growing near *L. repens* and *L. vulgaris*, were exhibited. Read, a paper on Vegetable Monstrosities, by The Rev. W. Hincks; illustrated by numerous specimens, both dried and preserved in spirits, of monstrosities caused by adhesion, transformation, and increase and decrease of parts. Read also, the commencement of a paper by Dr. Gardner, on the Influence of the Dew-Point on the Temperature of Plants.

December 6.—Robert Brown, Esq., V.P., in the chair. Specimens of *Scrophularia Ehrharti*, collected in Bellsze Park, were exhibited. Read, a paper by Mr. D. Cooper, illustrated by drawings, on the Structure of the Fruit of a Species of *Phytelephas*, called "Vegetable Ivory." The albumen of the seed is so hard as to take a finer polish than common ivory. Under the microscope it exhibits a tubular structure. Read also, the conclusion of Dr. Gardner's paper, on the Influence of the Dew-Point on the Temperature of Vegetables. From a series of experiments the author concludes,—1. That vegetables possess no specific heat. 2. That the variations observed in plants are chiefly due to the state of the dew-point, the elevation of which causes an increase of heat by checking evaporation, whilst its depression, by encouraging evaporation, produces a decrease of heat. 3. That the sensible heat of plants is directly as the temperature of the air and the chemical action proceeding in their cells, and inversely as the radiation, evaporation and conducting power of the air and soil; the chemical action increasing with an increase of atmospheric temperature, the amount of heat resulting therefrom increasing also.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, November 11, 1841. Professor Graham in the chair.

Donations to the Herbarium were presented from Dr. Von Martius, and to the Library from Mrs. W. Campbell,—and Professor Balfour mentioned that since last meeting he had been in communication with the Natural-History Society of Athens, to which he had transmitted a set of the Society's publications.

The following papers and communication were read:—

1. Account of a Botanical Excursion to Skye and the Outer Hebrides, during the month of August, 1841, by Professor Balfour and Mr. Charles C. Babington; and remarks on the plants observed by them in the Islands of North Uist, Harris, and Lewis. In this communication the authors drew attention chiefly to those facts which tend to illustrate the variations produced by climate, soil and elevation. In Skye their observations were confined to the south-western part of the island. They landed at Arnadale, and passing by Knoek, Ord, and Strathaird to Loch Coiruisg, they crossed the Cuillin Hills to Sligachan, and from thence went by Bracadale to Dunvegan. Among the plants observed in this route may be mentioned *Rumex aquaticus*, *Atriplex rosea*, *Arabis petraea*, *Myriophyllum alterniflorum*, *Potamogeton oblongus*, *Orobanche rubra*, *Mimulus luteus*, &c. From Dunvegan they crossed the Minsh to Loch Maddy in North Uist, and after examining the botany of that island they proceeded to Harris and Lewis. On the lofty mountains of the forest of Harris, some of which they reckoned to be at least 3000 feet high, they were surprised to find very few alpine plants, for which they could only account by supposing the climate of the island to be so modified by the vicinity of the Great Atlantic Ocean, as to be too mild for the production of the usual alpine vegetation. The following are mentioned among the more interesting plants found in Harris and Lewis:—*Lamium intermedium*, *Rupia maritima*, *Pinguicula lusitanica*, *Thalictrum alpinum*, *Salix herbacea*, *Aira alpina*, *Saussurea alpina*, *Luzula spicata*, *Arabis petraea*, *Silene acaulis*, *Blysmus rufus*, *Juncus balticus*, *Scirpus lacustris*, &c. They also gathered *Hymenophyllum Wilsoni* among rocks upon the summit of Chesham, apparently the highest mountain of the range. The number of species observed in North Uist, Harris and Lewis, during this excursion, was 311, of which 21 belonged to the orders Filices, Lycopodiaceae and Equisetaceae. The number of true ferns was 14; being in the proportion of 1 to about every 22 of the flowering plants; that is, they form about 1-22nd part of the whole number of species at present known to be indigenous in these islands. Mr. T. Edmonston, jun., records 249 species of native plants for the Shetland Islands, (Ann. Nat. Hist. viii. 287), of which 14 are ferns, Lycopodiaceae and Equisetaceae, the number of true ferns being 7, thus showing a proportion of 1 fern to about 33 flowering plants. Owing to the necessarily imperfect character of the Long Island list, it is impossible to draw any satisfactory conclusions from the above proportions, between the flowering plants and ferns, yet it may be noticed that there is a great preponderance of ferns in both these northern and insular countries, although the actual numbers recorded are remarkably small. The ferns in Shetland are less numerous than those in Iceland or Faroe, while those of the Long Island exceed the Faroe species by four, and are exactly equal to the number found in Iceland,—the Faroe and Iceland lists being the smallest recorded in Mr. Watson's valuable paper on the Distribution of Ferns, recently published in the Transactions of this Society, (vol. 1, p. 89). The more mountainous character of the Long Island will probably account for the much larger proportion (1 to 22), which its ferns bear to the flowering plants, than that which appears to exist in Shetland—for although considerable allowances be made for the imperfect state of the Long Island list, on account of the short time employed in its preparation, yet it does not seem probable that the number of its flowering plants will be so far increased as to raise their relative proportion as high as that shown to exist in Shetland, since this would require an addition of 151 species, even if the number of

ferns remained stationary. The communication concludes as follows:—"We must be allowed to impress upon the Society, that this tour is not of the less interest for not having produced any plants new to the British Flora, since we consider the determination of the Flora of any district, peculiar either in its structure or situation, to be of importance, as elucidating the effect of soils or climate upon the distribution of plants. We would also take this opportunity of expressing our sense of the obligations under which we lie to the gentlemen of Skye and the Long Island, who in a truly kind and liberal manner exercised their hospitality towards our party, and greatly contributed to the pleasure, indeed we may say to the success, of the excursion."

2. On the Anatomy and Physiology of the seed of *Phaseolus vulgaris*, or French Bean; by Dr. Spencer Thomson, Burton-on-Trent. In this paper, which was accompanied by illustrative drawings, the author, after giving an elaborate dissection of the seed, stated a variety of circumstances relative to its mode or course of germination, and traced the analogy between that process and the growth of the foetus in the animal kingdom. He also noticed M. De Candolle's views on the subject, and pointed out the results which seemed to arise from them.

3. On the discovery of three species of Fungi, new to the British Flora, viz., *Tuber ferrugineum*, *Æcidium Thesii*, (Leefe), and *Uredo Symphyti*, (DeC.); by The Rev. J. E. Leefe. With regard to the first of these fungi, Mr. Leefe says—"The specimens are in general of a rich red bronze colour. Their smell is peculiarly strong and penetrating, so that on receiving a letter enclosing specimens, Mr. Berkeley can, before opening it, determine positively what it contains."

4. Notice of the discovery of *Cerastium triviale*, β . *holosteoides*, (Fries), near Kinfauns Castle, Perthshire; and of *Rubus arcticus*, near the head of Glen Tilt, Perthshire; by Mr. J. Robertson, Kinfauns Garden. Considerable interest was manifested respecting the occurrence of the latter species in the British Flora, and some discussion took place with regard to its identity; but the specimen exhibited was so imperfect as to leave doubts whether the discovery ought yet to be fully relied on, especially as our botanists have more than once been disappointed in this respect.—*Edinburgh Evening Post*, November 17, 1841.

BOTANICAL SOCIETY OF LONDON.

November 29.—Fifth Anniversary Meeting. John Edward Gray, Esq., F.R.S., &c., President, in the chair. The Report of the Council was read, from which it appeared that 20 members had been elected since the last Anniversary, and that the Society now consisted of 142 members. The donations to the Library amounted to 220 volumes, many of them valuable works. The Council had determined that the Report on the Scientific Proceedings of the Society should appear at the close of the winter season, and it was fully expected that a nearly complete collection of British plants would be ready for use in the course of the present winter, and also that a Foreign herbarium of several thousand specimens would soon be in equally good order. The new regulations as to the distribution of specimens, whereby the members are enabled to receive their parcels shortly after their lists of desiderata are sent in, had been much approved of, and the appointment of a paid Curator had been equally advantageous. The Report was unanimously adopted. A Ballot then took place for the Council for the ensuing year, when the Chairman was re-elected President, and he nominated John George Children, Esq., F.R.S., and Hewett Cottrell Watson, Esq., F.L.S., Vice-Presidents, Mr. G. E. Dennes, F.L.S., Mr. J. Reynolds, and Mr. T. Sanson, were respectively re-elected Secretary, Treasurer, and Librarian. Additional local Secretaries were also appointed.

December 17.—John Reynolds, Esq., Treasurer, in the chair. Donations of British plants were announced from Messrs. Hewett C. Watson, J. Seeley, G. Hubbard, S. P. Woodward, G. Rich, The Rev. W. T. Bree, and Miss M. Beever; British Fungi from Mr. D. Stock; and British mosses from Miss A. Worsley. Mr. Hewett C. Watson, V.P., presented specimens of the following undescribed British plants:—

1. *Linaria Bauhini*. Discovered near Penryn, in Cornwall, in 1830 or 1831, by Mr. Watson; again found at Shirley, near Southampton, in 1840; also by The Rev. W. Hincks, in the county of Cork, last summer. It is the *Antirrhinum Bauhini* of Gaudin's 'Flora Helvetica,'—the *Antirrhinum gentiifolium* of Suter's 'Flora Helvetica,'—but not the plant so named by Linnæus. Probably also it is identical with *Linaria Italica* of Trevisanus, and of Koch's 'Synopsis Floræ Germanicæ et Helveticæ.'

2. *Lolium multiflorum*. Discovered in a pea-field at Claygate, Surrey, in August, 1840, by Mr. Watson; also in other parts of England, during the past summer, by different botanists. It is *Lolium multiflorum* of Lamarck, Koch, and other continental botanists, who distinguish it from *Lolium perenne* by its annual root, numerous flowers in the spikelets, and the long awns. The two last are varying characters, and the plant is reduced to a variety of *Lolium perenne* by Bertolini, in the 'Flora Italica.'

3. *Bromus commutatus*. This grass is frequent in England and Scotland, but has constantly been confused with other species of *Bromus*. Smith first mistook it for *Bromus arvensis*, and afterwards, in the 'English Flora,' described it jointly with another species under the name of *Bromus racemosus*. The specimens distributed by the Botanical Societies of London and Edinburgh, under the name of *Bromus arvensis*, all probably belong to *Bromus commutatus*, and it is left a question whether the former species is indigenous to Britain. Independently of more technical distinctions, there is one obvious enough at first sight, namely, that the flowers of *Bromus arvensis* (Linn.) are only half the size of those of *Bromus commutatus*, (Schrader), as was shown in an accompanying specimen of *Bromus arvensis* from Germany.—G. E. D.

THE PHYTOLOGIST.

No. IX.

FEBRUARY, MDCCCXLII.

PRICE 6D.

ART. XLVII. — *Three Days on the Cotteswolds.*

By JAS. BUCKMAN, Esq.

HAVING engaged to accompany my friend Mr. Edwin Lees, in a three days' Natural-History expedition to the Cotteswolds, towards the end of September in the present year [1841] we started on our journey, armed with vasculums, portfolios, books, hammers and bags, and under the command of General Briggs, of Cheltenham, a gentleman to whom the naturalists of this neighbourhood are much indebted for his kindness in aiding their researches, by accommodating them on such occasions as the present with the use of his carriage, so that they may arrive at the scene of their labours on the rugged hill-top or heathy moor, fresh and ready for work.

Having proceeded as far from Cheltenham as the first coach-stage on the London road, we turned to the left from Andoversford Inn, and in a short time alighted from the carriage in the very heart of the Cotteswolds, the road leading directly over the top of the hills to the ancient town of Stow-on-the-Wold. Of course we soon diverged from the road into the fields, where we duly commented on the great abundance of *Campanula glomerata*, *Cnicus acaulis* and *Carlina vulgaris*, which in this neighbourhood are always stout and fair, and of goodly proportions, the latter especially, as it occurs from one to two feet in height, whilst on Leckhampton, a hill nearer Cheltenham, it seldom attains more than four inches, and looks so withered and dead as to lead an inexperienced botanist into the belief that it is some ill-grown specimen of a common thistle in a state of decay; and this peculiar appearance is not entirely lost in the more luxuriant specimens, as the external scales of the involucre always present the appearance of the "sear and yellow leaf" of approaching death. That beautiful thistle, *Cnicus eriophorus*, is frequently met with in a most luxuriant condition on the grassy sides of these hilly roads.

Immediately on emerging from this road to the right across the fields, by a place called Slad Barn, we found some fine plants of *Linaria spuria*, the corollas of several specimens of which had three or four spurs; this is a curious circumstance, but one that I had before observed in specimens growing near Cheltenham in a rich cultivated soil. Some of these corollas too, instead of being lipped, were salver-shaped, with a straight upright tube. I very much regret that I did not then think of 'The Phytologist,' as all good botanists should do, or I should certainly have made a drawing of this singular kind of metamorphosis, for insertion in its valuable pages; this omission I promise to rectify on some future occasion, as the extent of change cannot be shown in the dried specimens. This *Linaria* is extremely common on our highest hills as well as in the vales, and is accompanied in all its habitats by the elegant little *L. Elatine*, and I suspect the one is derived from the other, as I have met with numberless intermediate stages; and if *Linaria spuria* and *Elatine* are to be considered distinct species, surely the specimen I have adverted to must claim to be considered as an ad-

ditional one. *Specularia hybrida*, with *Euphorbia exigua* and *Peplus*, were found at the same spot. *Onobrychis sativa* formed the aftercrop of the field, from which barley was just ready to be carried; this substitution of *Onobrychis* for clover as an aftercrop is a somewhat novel feature in our farming.

Having crossed the road some distance farther on, we commenced tracing up a lovely hill-stream called the Windrush. At the picturesque village of Harmton it is a small brook, whose "waters flow on with a murmuring sound," and are as bright and as clear as crystal; and here we met with four species of *Potamogeton*,—*gramineus*, *densus*, *crispus* and *lucens*; the large beds of the three last, with their rich polished leaves, as they were agitated by the ceaseless flow of the rippling stream, under the influence of a bright sun, reflected the richest and most varied tints imaginable. The *Potamogetons* are comparatively rare with us, on account of our great paucity of water. In this brook we also found another plant of rare occurrence in this district, —*Poa aquatica*. Just before we left the road to explore the brook, our attention was arrested by the sight of two large trees of *Pyrus Aria*, which were then in fine fruit. This tree gives quite a characteristic feature to all the Cotteswold woods, the bright silvery leaves contrasting beautifully with the dark green of summer and the rich yellow and brown tints of autumn; but owing to the practice of annually clearing away a portion of underwood, with which this tree is generally doomed, it is rare to find a specimen in flower; and it is not until one meets with a venerable tree in some retired nook, where the woodman's axe has been withheld for a number of years, that one can obtain a presentable specimen, as these trees do not flower until, "with lichens silvery grey," the bark has attained the same hue as the leaves.

Leaving this brook to pursue its tortuous course through some beautiful green fields, we proceeded by a nearer route to the spot where it passes under the turnpike road; and having recrossed this *via intermedia* of our course, we again traced up the brook to the rich botanical habitat known by the name of the Seven Springs.* Here the water gushes out from several places at the base of an oolitic hill, tossing and leaping in wild tumultuous joy, as if well pleased to escape from its rocky cave into the light of day, and a glorious day it was that shone upon the liquid crystal at the time of our visit. These waters, at a short distance from the base of the hill, run over a largish surface of tolerably level ground, forming a kind of swamp or bog, bounded on one side by the Windrush, whose waters these springs considerably augment. The botanist who is not afraid of wet feet, or the chance of the occasional disappearance of a leg or so in the depths of a quagmire, and few ardent spirits mind such trifling mischances, will find himself amply rewarded by diligently examining every inch of this slippery place; for though it was so late in the year, we discovered the following plants during our short visit.—

<i>Blysmus compressus</i>	<i>Menyanthes trifoliata</i>	<i>Pinguicula vulgaris</i>
<i>Carex vesicaria</i>	<i>Parnassia palustris</i>	<i>Scutellaria galericulata</i>
<i>Hydrocotyle vulgaris</i>	<i>Pedicularis palustris</i>	<i>Triglochin palustre</i>
<i>Marchantia polymorpha</i>		

* These Seven Springs must not be confounded with those on the Cirencester road, which are said to be the source of the Thames. Our country people are very fond of calling by this name all places where the water gushes forth from a number of small channels.

A few yards farther on, in the spring or early summer, was to be found that rare plant *Thlaspi perfoliatum*; and this is now perhaps the only locality for it in Britain, as I am given to understand that the rapacity of unprincipled collectors has nearly or quite destroyed it in its old habitat at Burford quarries. Two years since, on another of the small hills beyond the one at the base of which we have been tarrying so long, I gathered a plentiful supply of *Anemone Pulsatilla*; and at the same time I accidentally stumbled on the *Thlaspi*. In the vale below, on the brook side, is our only habitat for *Saxifraga granulata*.

Leaving this most interesting spot we pursued our journey to the large and opulent village of Bourton-on-the-Water, plucking on our road a few specimens of *Anthyllis Vulneraria* and the pretty little *Geranium columbinum*; which latter plant, associated with *Acinos vulgaris*, occurs plentifully on all our hilly lands which have been subjected to cultivation.

Next morning we had to await the ending of a thunder-storm before we could resume our wanderings; and then, having to pass over a considerable tract of country which we had already examined, we hired a vehicle to convey us to the woods between Bourton and Winchcombe, having previously fixed on the latter place as the termination of our second day's journey. On arriving at Guiting woods we left the chaise and proceeded a little distance along the lane, the grassy sides of which were thickly strewn with *Gentiana Amarella*; this species is very abundant all over the hills, but I have never found *Gentiana campestris* in this neighbourhood.

Having fairly entered into these woods we made it a point to trace up the Windrush to its source, expecting to meet with a picturesque wood scene, and perhaps find some good plant, which might be accurately localized from growing in such a situation. In the former expectation we were disappointed, as the spring rises out of a swampy piece of ground, and presents nothing remarkable; but three grasses amply satisfied us on the latter score, these were *Elymus europæus*, *Calamagrostis epigejos* and *Poa nemoralis*, all three of rare occurrence here. *Alchemilla vulgaris* was very fine; this plant is not common here, while *A. arvensis* is found everywhere. *Rhamnus catharticus* and *Viburnum Lantana* were observed in this wood; and the grassy glades in the wood and fields around were thickly studded with *Colchicum autumnale*. This plant is very plentiful all over the Cotteswolds, and even in the vale we have whole fields of it: the roots and seeds of the *Colchicum* are collected in great quantities from this neighbourhood, for the London physic-market, as the plant still holds a high reputation for the cure of gout and rheumatism.

The above are some of the most important plants seen by us this day, the grass having been so wet as to prevent our examining the country with the requisite industry and circumspection; moreover, we were rather anxious to reach the old-fashioned town of Winchcombe, whither our friend the General had preceded us. Soon after emerging from the wood we fell upon a large stone-quarry, which of course claimed a share of our attention. And this reminds me that I have not yet said anything on the geological construction of this neighbourhood, a subject which I consider highly important to the proper illustration of the Botany of a district; perhaps therefore the following remarks may not be deemed out of place.

The vale of Gloucester is composed of the blue clays and marls of the lower lias formation, presenting us with all the fossil remains peculiar to this formation, such as the *Ichthyosauri*, many *Ammonites* and bivalve shells, and occasional remains of plants. This bed of lias clay is occasionally covered to the depth of from 20 to 30

feet with fine sand, especially in many parts upon which the town of Cheltenham is built, the greater portion of which deposit is derived from the neighbouring hills by which the vale is bounded on its eastern extremity; on tracing up the escarpments of these hills we meet with the following beds, namely, the middle lias or lias marlstone, the upper lias, corresponding with the alum shale of Yorkshire, immediately on which rests the inferior oolite, which forms the greater portion of the Cotteswold hills. And it should be remarked that although the members of the lias formation make up the greater portion of the acclivities by which the higher hills are approached, still these slopes are so thickly covered with the debris from the oolite which forms the upper stratum, as to render this, so far as the Botany is concerned, a district of oolitic limestone, whilst the vale, as I have before remarked, offers us the stiff clays of the lias. And here I would refer my readers to an article by Mr. Spruce (*Phytol.* 101), and it will at once be seen that notwithstanding this neighbourhood and Yorkshire are so much alike in lithological character, scarcely two plants of the same species were found in the three days' ramble of the two parties, plainly showing that in these instances we must seek for some other causes of variation besides the soil, of which altitude and climate may require some consideration. It may be worthy of remark that our highest elevation is little more than 1000 feet.

After duly examining the quarry which has led us into the above geological dissertation, we proceeded on the even tenour of our way along the lane, the banks of which were thickly strewn with that everywhere found and universal favourite, the harebell, intermixed with *Gentiana Amarella* and the common *Hieracium Pilosella*. Having arrived at the Tracey Arms at Winchcombe, and packed up a hamper of specimens, we refreshed ourselves, and then finished the second day's ramble with an examination of the fine ruins of Sudely Castle, whence we gathered, as a memorial of our visit, that constant attendant on old ruins, *Cheiranthus Cheiri*.

Notwithstanding certain gloomy appearances the previous evening, the early dawn of our third day was as favorable as one could desire. The sun, at rising, was shrouded in clouds of mist—a sure indication of a fine day; these being gradually dispelled, he soon shone forth in all his splendour, the fierceness of his rays being tempered by a delightfully refreshing breeze. Early on a morning of such promise did Mr. Lees and myself once more wend our way to the Cotteswolds, this time with the intention of examining their western escarpment. Proceeding from the town of Winchcomb towards Postlip, near the paper-mills, we fell in with a tree of *Rosa sarmentacea*; the greater stoutness of the stems, its more compact mode of growth, with the larger bright scarlet fruits of this rose, distinguish it at first sight from *Rosa canina*. In the same hedge-row were some fine trees of *Salix Russelliana*; and further on, nearer the mill, great quantities of *Lathyrus sylvestris* presented themselves. At the once stately mansion called Postlip Hall, we spent a little time in sketching the beautiful Norman arches of a ruined chapel. Immediately below the chapel, on the banks of a hill rivulet, we met with *Triglochin palustre*, *Blysmus compressus*, *Spergula nodosa*, and quantities of *Valeriana dioica*; and following this little stream up a ravine, we were soon presented with some fine specimens of *Polypodium calcareum*, and on the side of the hill to the left were some splendid plants of *Atropa Belladonna* in fine fruit. We then passed over Cleeve Clouds in the hope of finding *Astragalus hypoglottis*, as I had seen a specimen from thence, but in this we were disappointed; however, in examining a field covered with *Calluna vulgaris*, we were amply rewarded by securing many specimens of *Gnaphalium sylvaticum*. We next examined the cliffs over-

hanging Queen Wood, which look down upon Lord Ellenborough's seat at Southam; the crevices of the rocks afforded *Asplenium Trichomanes* and *Ruta-muraria*, and on some of the masses of stones were *Myosotis collina*, *Solidago Virgaurea*, and young plants of *Verbascum nigrum*. Upon penetrating into the wood below, we were soon in active employment securing the most beautiful specimens of *Convallaria Polygonatum* in fruit, in searching for which we saw whole patches of *C. majalis*. *Rosa villosa*, *Viburnum Lantana* and *Opulus*, *Rhamnus catharticus*, *Conyza squarrosa* and *Campanula glomerata* also claimed a share of our attention; but the greatest prize in this rich spot is *Rubus saxatilis*, and of course upon seeing it we were very anxious to secure specimens in fruit, as it simulates the young state of *R. cæsius* so much, as to render it a matter of great difficulty to distinguish them. After looking for some time in the thickest part of the wood without finding the wished for *red drupes*, we directed our attention to the more open parts, where we found some specimens in very fine fruit, with the drupeolæ few, large and red. And here we observed a somewhat curious fact, which is that such plants as had runners were without fruit, while those in fruit were stronger, partially woody, but destitute of runners. After collecting *quantum suff.* of these rare plants, we were bending our steps homewards towards Cheltenham, when my friend Lees became very anxious to visit a beech-grove then in sight; and though we had been thirteen hours on the wild hills with only a biscuit between us, I was fain to yield to his wishes in the hope of finding *Monotropa Hypopitys*, which we did find, and I am quite sure the readers of 'The Phytologist' will share in our pleasure and gratification in so doing, in reading the elegant paper by Mr. Lees, detailing his investigation into its parasitic nature, (Phytol. 97). After securing an abundance of the *Monotropa* in fruit, and also some fine specimens of *Epipactis grandiflora* in the same state, we set our faces homeward in real earnest, and soon arrived well satisfied with our sport, and inwardly resolving never to let a season pass without having a Natural-History expedition on the lovely Cotteswolds.

JAS. BUCKMAN.

Cheltenham, December 14, 1841.

ART. XLVIII. — *A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Continued from p. 121).

Echium vulgare. Near the Infirmary and on Town Hill.

Pulmonaria officinalis. Found by Dr. Turton in woods between Neath and Pyle, (Dillwyn).

Lithospermum officinale. At Park, near the Mill.

———— *purpureo-cæruleum.* Abundant in several places on the coast of Gower, particularly in Nicholson Wood, and about the top of the cliffs in Caswell Bay. It has also been found on a rocky bank near Newton-juxta-Pyle, by the Rev. J. M. Traherne, and in other places in that neighbourhood by Mr. Bicheno.

Borago officinalis. Near Port Tennant and Cadoxton.

Lycopsis arvensis. Near Port Tennant.

Anchusa sempervirens. At Baglan, near Neath, and about the ruins of Neath Abbey, (Dillwyn).

Myosotis cæspitosa. Near Singleton.

———— *arvensis*. Common.

Cynoglossum officinale. Side of road to the Mumbles, common; Cromlyn Burrows.

Convolvulus arvensis. Sand hills, common.

———— *sepium*. Common in hedges. The var. *incarnata* also occurs on the road to Dan-y-graig, and in hedges between Wych-tree bridge and Neath, and about Penrice.

———— *Soldanella*. Sand hills; Mumbles Road and Cromlyn Burrows.

Plantago major, media, lanceolata and *Coronopus*.

———— *maritima*. Neath canal. On the rocks and sandy shores in Langlan, Caswell and other Bays. My late friend the Rev. Hugh Davies, in his 'Welsh Botany,' p. 16, says that the Welsh call it "Bara can y defaid," and "Sampier y ddafed," and that these names, and the almost miraculous properties which this plant possesses for fattening cattle, have been erroneously attributed to *Salicornia herbacea* by Pennant, and to *Crithmum maritimum* by Withering, (Dillwyn).

Armeria maritima. Mumbles light-house and coast.

Statice spathulata. Gower.

Ligustrum vulgare. In hedges.

Andromeda polifolia. On Cromlyn Bog, chiefly towards its northern extremity, until the drainage took place. A quadrifid octandrous flower sometimes occurs on the same plant with others that are decandrous, (Dillwyn).

Calluna vulgaris, and var. *alba*. Kilvey Hill.

Erica Tetralix, and var. *alba*. Town Hill and Pennard.

———— *cinerea*, and var. *alba*. Kilvey Hill.

———— *vagans*. Mr. Thomas Milne, a botanist not likely to be deceived, told me that he had seen specimens which he knew had been gathered on a heath somewhere near Pontardulais, but I have never been able to find it. I was also assured by Dr. Turton, that a wild specimen of *Erica mediterranea* had been brought to him, which was gathered in the same neighbourhood, (Dillwyn).

Vinca major. Plentiful about Park Mill and some other places, but I have never found it in any place to which it might not probably have strayed from some neighbouring garden, (Dillwyn).

Erythraea Centaurium. Between Swansea and Port Tennant, and common round Swansea.

———— *linariifolia*, (*littoralis*, Hook.) On the down above the Mumbles light-house.

———— *ramosissima*, (*pulchella*, Hook.) In great abundance in a field near the Infirmary, and at Salt-house Point. Abundant on Cromlyn Burrows, where I have also found a plant which very well answered to Sowerby's figure of *Chironia littoralis*, and I much doubt whether either of them is more than a starved plant, or variety of *E. Centaurium*, (Dillwyn).

Chlora perfoliata. Road near Neath; frequent in Gower; between Drymma and Gwernllwynwith, and some other places.

Menyanthes trifoliata. In great abundance on Cromlyn Bog, Fairwood Moor, &c.

Datura Stramonium. Occasionally found on rubbish-heaps, (Dillwyn).

Hyoscyamus niger. Frequent in Gower, Cromlyn Bog, and by Neath Canal.

Verbascum Thapsus. Singleton and Mumbles road.

———— *Blattaria*. Singleton Marsh and several other places round Swansea; at

Neath Abbey, and by the road side between Taybach and Maryam. Though rather out of this district, it has also been found by Mr. Edward Hawkins on the road side three miles from Pyle, towards Cartridge, and in the lane leading to Pwllwyrach. Another species, allied to *V. Blattaria*, which I believe has not yet been admitted into the British Flora, for many years grew freely with *Cenothera biennis*, on the sand hills in front of Cambrian Place, but by the enclosure of the Burrows it has probably been destroyed, (Dillwyn).

Atropa Belladonna. In a hedge above the Mumbles; also said to grow near Oystermouth Castle. Mr. Dillwyn observes that he has never seen it nearer to Swansea than Llandaff; Mr. Flower, of Bath, however, found two specimens in 1839, near the Mumbles.

Glaux maritima. On the sand hills opposite Cambrian Terrace.

Lysimuchia vulgaris. Banks of Neath Canal.

———— *nemorum*. Hedges near Port Tennant.

Anagallis arvensis. Common. The var. *β. cærulea*, and another beautiful variety, nearly white, with a pink eye, have been found near Pentlegare by Mr. D. Llewellyn, (Dillwyn).

———— *tenella*. Near Singleton.

Samolus Valerandi. Neath Canal.

Utricularia minor. Llandwr Marsh.

Veronica Anagallis. Near Park and Pennard; lane from Mr. Vivian's to Sketty green.

———— *Chamædrys*. Near Penllergare; M. Moggridge.

———— *serpyllifolia*, *arvensis* and *polita*.

Rhinanthus Crista-galli. Town Hill and Cwmbola.

Pedicularis sylvaticus. Near Cromlyn Bog; Penllergare.

———— *palustris*. Penllergare, Cromlyn Bog and Fairwood Moor; common.

———— var. *alba*. Cotremia, near Penllergare, Fairwood Moor, &c.

Bartsia viscosa. About Drymma, where it was first found by Mr. Edward Hawkins.

It also grows plentifully in marshy fields in Cromlyn Dingle, on the left of the old road between Swansea and Neath, and other similar places, (Dillwyn).

———— *Odontites*. Kilvey and Singleton, common.

Euphrasia officinalis. Common.

Linaria repens. Ballast-bank, Britton Ferry; and plentiful by the road-side in many places about Llandilo, Llangaddock, and Llandovery.

———— *vulgaris*. Fabian's Bay.

———— *purpurea*. By Mr. J. Thomas's, Hill House.

Digitalis purpurea. Hedges, especially near Singleton, in great luxuriance.

Scrophularia nodosa and *aquatica*. Singleton Marsh.

Orobanche major. Not uncommon in the neighbourhood; there is also another species, which answers nearly to the description of *O. cærulea*, but is of a dull reddish brown colour, (Dillwyn).

———— *elatior*. Under the castle-walls at Penrice, and other places in the neighbourhood.

Melampyrum pratense. Llandwr Marsh, Penllergare.

Verbena officinalis. Common.

Salvia pratensis. Gathered by Dr. Turton in limestone meadows about Port Eynon, (Dillwyn).

Ajuga reptans. Common.

- Lycopus europæus*. Cromlyn Bog and banks of Neath Canal.
- Mentha rotundifolia*. On the castle cliff at Penrice, and it formerly grew about Singleton, (Dillwyn).
- *piperita*. Found by Dr. Turton in the town ditch, near Rutland Place, (Dillw.)
- *arvensis* and *aquatica*. Cromlyn Bog and Kilvey Hill.
- Thymus Serpyllum*. Common.
- Origanum vulgare*.
- Calamintha officinalis*. Singleton Marsh.
- *Acinos* and *Clinopodium*. Common.
- Glechoma hederacea*. Common.
- Galeopsis Ladanum* and *Tetrahit*. Common.
- Lamium purpureum*. Near the Ferry.
- *album*. Common.
- *Galeobdolon*. Penllergare.
- Leonurus Cardiaca*. At Kidwelly, found by Mr. E. Foster, (Dillwyn).
- Stachys sylvatica* and *palustris*. Fabian's Bay.
- *palustris* β . *ambigua*. Kilvey Hill.
- *arvensis*. Mumbles road.
- Ballota foetida* ^P and var. *alba*. Near the Ferry.
- Scutellaria minor*. In moist meadows about Penllergare and Drymma, generally more common than *S. galericulata*, (Dillwyn).
- Prunella vulgaris*. Common.
- Rumex Acetosa* and *Acetosella*.
- *scutatus*. Mr. Dillwyn has observed this plant for many years together, growing luxuriantly on a wall; and Mr. Bicheno has found it in similar situations about Cornelly, with as good a claim as *Ornithogalum nutans*,* *Chærophyllum sativum* and many others, to be placed in the British Flora.
- Polygonum amphibium* and *lapathifolium*. Common.
- *minus*. Near the Ferry.
- *maritimum*. Near Salt-house Point; near eastern pier.
- *Bistorta*. In moist meadows, not uncommon.
- *Persicaria*, *mite* and *Convolvulus*.
- Salsola Kali*. On the sea-shore, near the Ferry, with a variety.
- Salicornia herbacea*. Salt marsh near Neath canal.
- *radicans* β . *fruticosa*. Said by Dr. Turton to grow about Salt-house point, (Dillwyn).
- Chenopodium Bonus-Henricus*. On the Worm's Head, where it is used as spinach, for which it is an excellent substitute; also near Neath.
- *rubrum*. Near Singleton marsh.
- *album* β . *viride*. Near Singleton.
- *glaucum*. About St. Helen's.
- Schoberia maritima*. Salt-house Point, near the eastern pier, and the Neath Canal.
- *fruticosa*. Port Tennant.

* On the sandy sea-shore opposite the race-course on Cromlyn Burrows, and more than a mile from any sort of house or garden, Mr. L. L. Dillwyn has found a thriving young plant of *Yucca gloriosa*, and it has all the appearance of having risen from a seed which the tide had cast there.

- Beta maritima*. In great abundance in all the caves on the sea-coast of Gower.
- Halimus portulacoides*. Muddy shores on Cromlyn bog; Park and Pennard.
- Atriplex patula*. Between the Ferry and Port Tennant.
- *angustifolia*. Near Singleton, and near Kilvey Hill.
- Urtica urens* and *dioica*.
- Reseda Luteola*, *lutea* and *fruticulosa*. Mumbles road, in a field near the Infirmary, and Singleton.
- Euphorbia Helioscopia*. Corn-fields.
- *Cyparissias*. I believe this also has been found in the neighbourhood, but the only certain habitat that I know of in Glamorganshire, is the road-side near Duffryn. It has also been found between Cardiff and Pont-y-Pridd, where it was gathered by Mr. Woods, (Dillwyn).
- *Paralias*. Common, especially about Pennard.
- *portlandica*. About Caswell Bay. I have found it in abundance near Pennard, on the coast.
- *exigua*. Sketty.
- Mercurialis perennis* and *annua*. Pennard Castle.
- Betula alba* var. *heterophylla*. By Morris Castle.
- *alba* var. *mollis*. About Gwernlenwith.
- Alnus glutinosa*. Near Singleton and Cwmbola colliery.
- Salix Russelliana*, *vitellina*, *triandra*, *aurita*, *aquatica*, *cinerea*, *fusca*, *β. repens*, *δ. fatida*, *ζ. argentea*.
- Populus alba*, *tremula*, *nigra*.
- Quercus Robur*. Common.
- *sessiliflora*. Kilvey Hill.
- *Cerris*. There were formerly several, there are now two or three, large trees growing in the woods by the lime-kiln near Aberdylais; and I have reason for believing that some acorns of this species were planted about this neighbourhood not very far from a century ago, (Dillwyn).
- Corylus Avellana*. Cromlyn Bog.
- Juniperus communis*. Gower.
- Taxus baccata*.
- Myrica Gale*. Cromlyn Bog.
- Callitriche autumnalis*. Near Neath and Gwernllwynwith.
- *vernalis*. Common.

J. W. G. GUTCH.

(To be continued).

ART. XLIX. — *Varieties*.

100. *Note on Lycopodium inundatum*.* I have this day been looking on Esher Common, with the last number of 'The Phytologist' in hand, for *Lycopodium inundatum*, and have found it in tolerable abundance; but as on close inspection I find its habit as to branching to be more than occasional, I venture to send you a specimen, and to state what appears to me to be the normal mode of growth. In several plots of ground which have been pared not very long ago, perhaps three or four years, I endeavoured to trace the old branch of the *Lycopodium*, and almost invariably, where I

* In a letter to E. Newman.

was able to do so, found it remotely connected with another old branch at a wide angle. I think I found as many recent stems forked as simple; and the latter, to my mind, appeared to form the exception, and not the rule. I beg to send this as a suggestion, which, I cannot help thinking, you will find, on investigation, to be founded in reality; for, according to my view, the stems are, as you say, prostrate, creeping, firmly adhering to the soil by means of their roots, but instead of being rarely branched, *with a tendency at length to become dichotomous*, the two branches then gradually growing at a wider angle from each other, perhaps until the angle is one of 70° . The old stems are all so much decayed that I was not able to secure a single one with its remote branch; but the specimen I send will show the incipient ramifications, the weaker of the two at a very obtuse angle. *Centunculus minimus* and *Bidens cernua* are both found on the common.—*W. H. Dawnay*; 30, *Upper Brook St.*, Sept. 22, 1841.

101. *Curious form of the common Reed*. Should the botanist be tempted to ramble along the shore towards Puckaster, he can hardly fail to remark the very singular form of the common reed (*Phragmites vulgaris*), which abounds on the slipped banks of wet and almost semifluid clay, skirting the southern shores of this island. The only notice I can find of this curious prostrate variety of a species naturally quite erect, is in Ray's Synopsis, 3rd edition, by Dillenius, where, in the *Indiculus Plantarum Dubiarum* at the end of the volume, I remember to have read very long ago the then very puzzling announcement of a "*Gramen arundinaceum 30 pedes longum*. On the South of the I. of Wight by the sea-side towards the Point;" precisely the very station on which I first met with it, and calling to recollection the above quotation, which at the time of reading it only created a feeling of wonderment, the mystery was at once explained. Springing from the steep sides of these extraordinary land-slips, the roots interlacing in all directions just beneath the surface, may the common reed of our ponds and marshes be seen with its culms depending like long and slender ropes, or trailing in a straight or serpentine direction on the shingly beach or the smooth and level sand, and that without rooting at the joints, to the length of from 20 to 40 or even 50 feet. I have never observed the extremities of the culms to blossom under these circumstances, as indeed they could scarcely be expected to do with so exhausting a length of growth; the leaves too are very short, as if imperfectly developed, and occasionally a few radicles are emitted from one or other of the joints, but in general the plant lies quite prostrate and entirely unconnected with the soil from the root upwards, so that it may be wound about any object like a cord, without the least difficulty. The variety is very common on the slipped shore beyond Black-gang, and has been noticed since near Bembridge, by my zealous friend Dr. Thos. Bell Salter.—*Wm. Arnold Bromfield*; *Eastmount, Ryde, Isle of Wight*, Nov. 8, 1841.

102. *Staphylea pinnata*. The retention of *Staphylea pinnata* in our Floras seems continued in deference to the authority of Ray, in whose time it is said to have grown about Pontefract sparingly and not certainly wild. It is likewise mentioned by Merrett as found in "woods in the farther part" of the same county, and as a Yorkshire plant by Smith, on the authority of Saml. Hailstone Esq. of Bradford, but who now sees reason to believe himself mistaken in thinking it a native. The old writers, Gerard and Parkinson, mention it, the former giving very suspicious localities for it in Lincolnshire, the latter, hedges about Ashford in Kent. In none of these stations has it been seen by any recent botanists. I am told it is plentiful in Arniston woods, near Edinburgh, but accompanied by the lilac, laburnum and other shrubs of foreign growth, plainly pointing out its extraneous origin. It is much to be regretted that our gene-

ral and local Floras should be burdened with stations actually *more than suspicious*, yet passed currently for truly wild localities, without allusion to or comment on their disputable character. The practice is one subversive of all progress in Vegetable Geography, a most interesting and delightful department of botanical science.—*Id.*

103. *Additions and corrections in the Scottish localities of Lycopodium inundatum*, (Phytol. 49). From the careful manner in which Mr. Newman is drawing up his interesting papers on the British Lycopodia in 'The Phytologist,' I presume he will excuse my pointing out a slight inaccuracy in that on *Lyc. inundatum*. He mentions two localities in this country, but they are really but one and the same station, and that a very circumscribed one, hardly two yards square, first observed by myself. Dr. Balfour, I know, never saw this *Lycopodium* growing in Nairnshire, and Dr. Greville I believe never was there; they have furnished him I suppose with copies of the talies which accompanied the specimens they received from the station, so that it is not unlikely the mistake arose with myself; I shall give below the station more correctly described. This correction is so unimportant that I should not have troubled you about it, but that I can give you at the same time three other Scotch stations for this plant. Beginning at the most South-easterly station and going N.W., they would stand in the following order, which is also, I rather think, the order of their discovery.

Scotland.—Morayshire; at Hatton, on the confines of the parishes of Alves and Kinloss, *Mr. Geo. Wilson*. Nairnshire; near Lochlee, to the east of Nairn, *Mr. Jas. B. Brichan*: on moist heathy ground (now planted) between Budgate and Inchgettle, near Cawdor, *Mr. W. A. Stables*. Ross-shire; by the side of the path leading from Craigdarroch Cottage towards the Falls of Rogie, beyond Strathpeffer, *Mr. Geo. Wilson*. — *Wm. Alex. Stables*; Cawdor Castle, Nairn, Nov. 18, 1841.

104. *Lycopodium annotinum*, *Selago* and *Selaginoides*. The stations for *Lycopodium annotinum* may also be caried more to the northward, for I have a specimen of it from Ross-shire, given me by Mr. Geo. C. Smith; and I myself have gathered it (Aug. 3, 1833) on Freewater, a mountain in Sutherlandshire. In giving the stations for this species, you give Ben na *Mac dhui*, i. e. the Mountain of the Black Son, instead of Ben na *Muic dhui*—the Mountain of the Black Boar. I cannot however vouch for my Gaelic orthography, though it is nearer what it should be than yours. I shall give the stations whence I have specimens of *Lyc. Selago* and *Selaginoides*, though I fear too late for the papers on these species, at any rate for one. *Lycopodium Selago*.—Pennyghent Hill, Yorkshire; and Widdybank, Teesdale, Durham; *Mr. R. B. Bowman*. And I have gathered it myself in Glen Callader, and on Ben na *Muic dhui*, in Aberdeenshire. *Lycopodium Selaginoides*.—Coilmore, west of Ireland; *Mr. R. I. Shuttleworth*. High Force of Tees, Durham; *Mr. R. B. Bowman*. Hills round Ulleswater. And I have picked it in Glen Dole, Forfarshire.—*Id.*

105. *Notes on the Genus Tilia*. Notwithstanding the repeated discussion of the claims of our three species or forms of *Tilia* to be considered indigenous to Britain, and the adduction of many facts *pro* and *con*, no definite conclusion appears as yet to have been arrived at. In this undecided state of the question it becomes the duty of botanists to accumulate all the facts and observations within their power, bearing upon the subject at issue. With this view I forward the following statement of the appearance and occurrence of the genus in the Forest of Wyre, as communicated to me by Mr. George Jorden, of Bewdley. I should however premise that the present Forest of Wyre, which comprises an area of about fifteen or sixteen square miles, one

half in Shropshire and the other in Worcestershire and Staffordshire, is merely the remnant of a much more extensive forest, which, from ancient records, is well ascertained to have existed there in the earlier periods of our history, and consequently must be considered as an undoubted primitive or natural forest. Mr. Jorden writes as follows.

“The *Tilias* are thinly scattered over the Shropshire part, but in the Worcestershire portion they are abundantly spread over an extensive district, there being many entire copses of them. A loamy or sandy soil suits them best. By some eminent botanists the *Tilias* are not considered indigenous; I consider them truly so, if I may be allowed to differ from them in opinion, when founded on the results of my having traversed this forest in various parts, for upwards of three miles in a straight direction. I find *T. Europæa* and *grandifolia* very generally distributed in a great portion of Worcestershire, and but sparingly in Shropshire, in our native woods and hedges on the rocky declivities of the banks of the Severn, where they grow self-planted in shapeless masses. They prefer the light soils accompanying the new red sandstone formation, and have spread themselves over the stiff soils adjoining, but more sparingly. Even the oak, king and tyrant of the forest, has permitted the location of *Tilia Europæa* in the centre of the forest of Wyre, but *T. grandifolia* is not so plentiful. In our very old hedges, so interesting in those portions of the country which have been longest under cultivation, are faithfully recorded all our truly indigenous trees and shrubs, which were moved promiscuously from the contiguous wilds some centuries ago, and which will remain for ages yet to come, since by diminishing their stature their existence is apparently prolonged. In a very short space of such hedges I have noted the greater number of our native trees and shrubs, the undoubted tenants of our ancient forests, and amongst the rest *Tilia Europæa* and *grandifolia*. In plantations I perceive some *Tilias* which seem to differ from those which grow wild in our woods and hedges.”

Mr. Jorden kindly accompanied the above interesting and instructive remarks with specimens, which on examination I found readily separable into three very distinct forms, identical with our three species:—*Europæa*, *grandifolia* and *parvifolia*. These, independently of any characters from the form, number, or clothing of the fruit, I perceived were easily distinguishable by the form and texture of their leaves. In *T. Europæa* and *grandifolia* the leaves were of a thin membranaceous substance, of a bright transparent green, paler on the under surface, and with very unequal bases. In *Europæa* the serratures of the margins were finer and sharper, their apices pretty generally directed towards the point of the leaf; whilst in *grandifolia* the serratures were larger and coarser, their apices patulous or spreading in all directions. The nervures of *T. grandifolia* on the under surface were ciliated or hairy; those of *Europæa* being glabrous, except at the axils. In *T. parvifolia*, on the contrary, the leaves were of a thick coriaceous texture, of an opaque green on the upper surface, but peculiarly and most markedly glaucous beneath, and with very equal and deeply cordate bases. The serratures of the margins were large, coarse and patulous, having a strong tendency to become lobed in the upper portion.—*W. A. Leighton; Shrewsbury, December 22, 1841.*

106. *Notes on Monotropa Hypopitys.* In reference to the question of the parasitical habit of *Monotropa* (Phytol. 43), I may state that I have had an opportunity of studying it this year in rather favourable circumstances. It grows on the Lancashire coast, near Southport, among *Salix argentea*, on the roots of which it was supposed to be parasitical. With a view to ascertain this, I was supplied in August last with a plant

carefully cut out in the sod, by the original discoverer (Linnæus Aughton of Southport), through the kindness of my friend Dr. J. B. Wood, of Manchester. Notwithstanding the apparent facilities for laying bare the root of the plant, the soil consisting of mere sand, it was not an easy task to separate the extraneous matter from the subject of enquiry, and at the same time to preserve the connexion, if any, that might exist between the root of the *Monotropa* and that of the *Salix* included in the sod; but having bestowed considerable care on the process, I feel warranted in stating that the plant *is not a parasite*. The root seems to consist of a number of branched tubers, whose extremities are not attenuated, but obtuse. My idea of the tuberous nature of the root, is founded on the fact that young buds are found immersed in the substance of the cylindrical ramifications, destined, I presume, to become future branches, which grow out at right angles from that on which they are fixed. If spongioles exist at all, they must be sought for at the extremities of the ramifications. It may be as well to state that the individual examined possessed a rudimentary stem, which had all the appearance of being a successive growth for development at a future season. The position of this embryo stem was somewhat peculiar, pointing downwards. I believe the plant to be entirely destitute of stomata: it also differs materially from *Lathræa* in its economy, having nothing whatever analogous to the subterranean leaves of that plant.

Since writing the above I have read the paper by Mr. Lees, — ‘On the parasitic growth of *Monotropa Hypopitys*,’ (Phytol. 97); and whilst I admit that my researches, however carefully conducted, afford only *negative* proof, I think it must be granted that neither the drawings nor the observations of Mr. Lees are conclusive, and that the affirmative evidence of the parasitism of *Monotropa*, amounts to no more than *probability*. Moreover, I cannot avoid the inference that the investigation has not been conducted with that care and scientific skill which the subject demands; for nothing like microscopic dissection appears in Mr. Lees’ drawings, and the mere application of a lens will not solve the mystery. In my deliberate judgment the “fleshy clustered radicles” mentioned in the foot-note at p. 100, form the proper and the only root of the plant; and some of Mr. Lees’ remarks confirm this opinion. In the Southport plant examined by me, there was indeed a very close investment of the root, nearly like that described by Mr. Lees; but my inference was that it consisted of the woolly matted extremities of the grasses which grew with the *Monotropa*: be that as it may, I succeeded in detaching it from the roots of the latter, with as much ease as such a coat might be expected to permit, and when detached there was no appearance of laceration or “solution of continuity” between it and the root which it had encased. Some idea of this coating may be gathered from the cloth-like arillus of the seed of the tamarind. I will now briefly state what I myself observed at variance with the position laid down by Mr. Lees.

1st. That the mass composing the root of the Southport *Monotropa* had a white covering of a matted and somewhat woolly substance, supposed to proceed from the radicles of the grasses which grew with it. Under the microscope, and after careful anatomical examination, I could not find the least trace of organic connexion between this coating and the root of the *Monotropa*.

2ndly. That there was not even *contact*, much less parasitical connexion, between this white coating and the roots of the *Salix* contained in the sod.

I may here mention what were my perceptions as to the scent given out by *Monotropa*. Mr. Lees confirms the account given by Smith, and it would appear that a primrose-like scent exhales from the plant, even when in seed. Fresh flowering plants

from Southport were quite inodorous to me until they had lain some time in paper to dry; they then gave out a scent very similar to that of a raw potato, and I took care to have the fact confirmed by other people's noses. I may also mention that *Monotropa* has not been accurately described either by Smith or Hooker. What the former alludes to as smaller and interior petals, in reality constitute the *calyx*, and are inserted on the *outside* of the true petals, which have cucullate bases projecting farther back than the point of insertion: hence the mistake into which Smith has fallen; the petals therefore are but 4 or 5, and the leaves of the perianth corresponding in number. The hollow channelled stigma and style of *Monotropa* may be considered very favourable for exhibiting the pollen-tubes; with a small hooked needle they may be drawn out from a longitudinally divided style in considerable masses, each pollen-tube having the same diameter as the grain of pollen at its summit. — *W. Wilson; Warrington, December 23, 1841.*

107. *Adiantum Capillus-Veneris* in the Isle of Man. During the summer of 1841, and but a short time previous to the date of Mr. Clark's notice (Phytol. 89), I had occasion to visit the Isle of Man; and foremost among the objects of attraction in the island was *Adiantum Capillus-Veneris* at Glen "*Meay*," to see which, and the ruins at Peel, a day was set apart. We were soon rolled across the island from Douglas, and having wandered musingly for some time among the venerable ruins of Peel Castle, I proceeded to the extensive quarry of old red sandstone in the neighbourhood, and thence directed my steps to "the Glen," which, after some trouble, I found. The plantation was entered through a gap in the hedge-row, and following a narrow path through the trees, I gained the brook-side about twenty yards below the fall; with some difficulty I made my way, on the right hand side of the brook, to the basin, and having leaped the stream, I found good footing on the extended gravel bed of the brook, which was bounded by a precipitous bank of rock, but certainly in no way deserving the appellation of a cave. It was in the crevices of this rock that I first observed the *Adiantum*, and here I found only about four almost leafless plants; fearful lest this might be the only spot on which it grew, and deprecating, with Mr. Newman, everything like botanical ravages, I made some further examination before any specimens were gathered, and for the satisfaction of Mr. Clark and others I can state that there is no need of doubt respecting its continuance, for in the course of my search, which was continued as far as I could manage to get along the left bank, I found young plants, intermingled with a few more mature ones, in tolerable quantities, though it required some examination where the fronds were gone, and they were fast decaying, to discover the roots of the fern. Furthermore I may add that the finest root I saw, perhaps the parent of the whole, was high above the waterfall, and perfectly inaccessible; this it was that left in my mind no fear of its eradication, I therefore gathered the few roots I first saw, leaving little *there* behind me. Such however was the state of these roots that they only supplied about seven green fronds; they are doing very well in cultivation. The difficulty of discovering the frondless roots was perhaps, also, in some measure, the cause of Mr. Clark's disappointment; but surely, to carry away the only root to be found, is not the best method of rendering authentic a dubious locality.—*Thos. G. Rylands; Bewsey House, Warrington, December 24, 1841.*

108. *Objection to the Alphabetical Arrangement of Local Lists of Plants.* Mr. Editor, will you allow me to make public (in the same periodical) an individual protest against a recommendation made by the reviewer of the second edition of the Catalogue published by the Botanical Society of Edinburgh, (Phytol. 109). The reviewer

very judiciously recommends the adoption of that Catalogue as a general standard of nomenclature; and with that recommendation I would most cordially concur, notwithstanding an opinion that some of the names will be again changed in a third edition. But the reviewer extends his recommendation farther than this, by suggesting the expediency of botanists adopting the alphabetical arrangement in publishing local lists of plants; and it is against this latter part of the recommendation that I would offer my single protest; knowing well, from long and frequent experience, the extreme inconvenience of consulting such alphabetical lists. It is absolutely necessary for distributing societies to have a fixed series of names, to facilitate the tedious processes of sorting their specimens, and of supplying the desiderata-lists of applicants; and the alphabetical order certainly offers many advantages for this special purpose. It is much otherwise when the general objects of science are concerned, and individual students or writers require to consult numerous books and lists of plants, published at different periods, or in different countries. Uniformity of names is out of the question under these circumstances; and any arrangement by which similar plants are brought together becomes better than an alphabetical one, in which similar names only can be brought together, and where a difference of name of course destroys the regularity of the series. I am now engaged in preparing for the press a somewhat voluminous work on the distribution and localities of the plants of Britain, and have found it so very inconvenient to make references to alphabetical catalogues, or even to consult them, as to have felt strongly disposed to draw a line of distinction between the alphabetical and arranged lists; rejecting the former as unsuitable for the purposes of science. I find that with one, or at most two exceptions, this line of distinction would throw out only the inaccurate lists of inexperienced and incompetent botanists; but as it would be wounding the feelings of others without any necessity for doing so, did I give examples of this, it is better to refrain. Those who have had half as frequent occasions as I have had, to consult lists of plants published in this country, will easily supply examples from their own recollections. The internal evidence afforded by the Catalogue reviewed, clearly indicates the individual author of the altered nomenclature; and we do not find him publishing local lists alphabetically, when the general purposes of botanical science are in view, though he has printed some highly interesting and valuable lists of that class.—*Hewett C. Watson; Thames Ditton, January 5, 1842.*

109. *Additions to the Flora of Moray.* Mr. Stables (Phytol. 132) records an interesting addition to the published Catalogue of Moray plants. Perhaps it may be worth while to add two other species observed by myself within the same district last summer, as the non-mention of any plant in a local Flora is a sort of negative evidence against its existence in the tract. The two species are *Allosorus crispus* and *Carex saxatilis*; the former growing in plenty on a stone wall near the toll-bar at Dalwhinnie; the latter in a mountain corrie, about five miles eastward of the same place, and at an elevation rather exceeding 2,500 feet.—*Id.*

110. *Erratum.* Phytol. 133, line 26, for 1779, read 1799.

ART. L.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

January 7. John Edward Gray, Esq. F.R.S., President, in the Chair. The following donations were announced. British Plants from Dr. Streeten, Dr. Young, The Rev. Gerard E. Smith, Miss S. Foster, Mr. Gutch, Mr. Edwin Lees and Miss E. Harvey. Mr. W. A. Leighton presented specimens of *Tragopogon minor* (Fries), found in Shropshire. Mr. James Ward presented specimens of *Lecanora rubra* and *Ribes spi-*

catum (Robson), found in Yorkshire. A specimen of *Poa Borreri* was exhibited, collected by The Rev. G. E. Smith, at Lymington; which, although presenting the characters of that species, actually exhibited in two panicles a strong tendency to the reflexion of the adult branches, as in *Poa distans*. Mr. Adam Gerard presented some interesting plants from Sierra Leone, collected by Mrs. Blyth. The Society had also received a large collection of foreign mosses from Dr. Muhlenbeck; and specimens of *Seseli Libanotis* collected in Herts, by The Rev. W. H. Coleman. Books had also been presented by Mr. Gutch, Mr. Luxford, Mr. G. Rich, and the Shropshire Natural-History Society. A letter was read from Dr. Nees Von Esenbeck, thanking the Society for electing him a foreign member.

A paper was read from Edwin Lees, Esq. F.L.S., "On the Flora of the Malvern Hills, and the surrounding District, in Worcestershire, Herefordshire and Gloucestershire," (accompanied by an excellent map illustrative of the stations of plants). The author observed that the Malvern Hills, in an undulating narrow ridge of nine miles in length, running very nearly due North and South, form "a great back-bone" between the counties of Worcester and Hereford, while Gloucestershire joins the two former counties at the extreme Southern end of the chain. The mass of syenite itself, of which the hills geologically consist, is so narrow that but little advantage would be gained by attempting to note the plants of the *Hills* irrespective of the *District around them*, most of the rarer plants in fact occurring rather in the valleys or at the base of the chain, than on the rocky summits themselves.

Mr. L. proposed to trace the vegetation of the district in three divisions, which will accord as well with the superficial aspect of the country as with its geological character; and it will then be more readily seen what influence (if any) the nature of the soil exercises upon the habitats of the various plants found within its boundaries.

The first division comprises the flat country eastward of the hills to the Severn, whose course, setting aside curvatures, is nearly parallel to the Malvern chain, the distance from the river varying in the space between Worcester and Tewkesbury, from five to about seven miles. The whole of this plain consists of red marl, with deposits of diluvial gravel in various places close to or to within short distances of the river. To the South of Upton several isolated hills of lias limestone occur, and North of that town various tabular or rather roof-shaped hills of red marl, more or less covered with wood, run parallel with the Severn, and beautifully diversify the scene. Even nearer the hills, especially southwards, many fortress-like eminences start up in a picturesque manner, and, robed with foliage, greatly relieve the tame flat that would otherwise present itself. The drainage of the whole district is received by the Severn, even from the limestone on the western side of the ridge; for the Ledden, that, flowing past Ledbury, collects the streams from the southward, after a further course of ten or twelve miles flows into the Severn at Gloucester. Throughout the whole eastern plain no lake or even pool of any striking dimensions occurs, but the streams that flow from the hills in the direction of Eldersfield, the Berrow and Longdon, being precluded from reaching the Severn directly by the intervention of steep banks of marl, and having only one outlet to that river with scarcely any fall, necessarily accumulate in the flat meadows, forming marshes of considerable extent and entirely overflowed in the autumnal season. Many efforts have been made to drain these marshes, and deep ditches beset them on every side; but having only one sluggish outlet, and being in fact in many places below the level of the bed of the Severn, it appears impracticable to provide an adequate drainage for them. However, the boundaries of the marshes have doubtless been much restricted of late years, for Mr. L. was informed that within the memory of persons still in existence, the ague was a common complaint in all the neighbouring parishes, but is now almost unknown; and the author had met with men who could tell tales of thirty years ago or more, when the *ignis fatuus* or wild-fire has led them a strange midnight dance, though now unseen for many a day.

Mr. Lees proposed to treat of the two other divisions in future papers; and the present paper concluded with a copious list of habitats, and specimens of all the plants (many of which were exhibited) are deposited in the Society's herbarium: and it is the intention of Mr. L. to send the Society specimens of all the plants (including Cryptogamia) in the Malvern district.

The following are the habitats of some of the interesting plants.

Isatis tinctoria: On a precipitous cliff of red marl forming the left bank of the Severn, immediately opposite Sarn Hill, at a place called the Mythe, one mile North of Tewkesbury, and a few hundred yards from the new iron bridge over the river. Mr. L. had noticed this plant here for above twenty years. *Koniga maritima*: Near the chalybeate well, Great Malvern: found in August 1841. *Vicia Bithynica*: In a field East of Malvern Wells, between the Admiral Benbow and Benbow's Farm-house. In the original edition of 'English Botany,' Dr. Abbot is said to have gathered it a few miles to the North of Great Malvern. *Smyrniolum Olusatrum*: On the red marl cliff at the Mythe Tout above Tewkesbury, close to the Severn, where some underwood extends up the acclivity. *Iris fetidissima*: On Sarn hill, near Forthampton, very luxuriant. Also at Cruckbarrow, South of Worcester, and on the Berrow hill, two miles from the southern end of Malvern chain eastwards. *Crocus vernus*: Battenhall, a little South of Worcester. *Dipsacus pilosus*: Below the Abbey, Malvern, eastward, and Bubble Brook, Worcester. *Verbascum Blattaria*: Forthampton, and between that place and Longdon. *Senecio squalidus*: Old buttresses, Worcester. *Delphinium Consolida*: On the border of Welland Common. *Helleborus fetidus*: Cotheridge. *Ornithogalum umbellatum*: Cotheridge, between Worcester and Malvern.—G. E. D.

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PRICE 6D.

ART. LI. — *A History of the British Lycopodia and allied Genera.*
By EDWARD NEWMAN. (Continued from page 86).



QUILLWORT.

ISOETES LACUSTRIS of Authors.

LOCALITIES.

England.	} In the lakes of all our mountain districts.
Wales.	
Scotland.	
Ireland.	

THE Quillwort, though confined to our mountain lakes, is an abundant plant in such situations, clothing the bottoms of the deep and still waters with a perennial verdure, and supposed by the casual tourist to be a submerged grass. In the North of England it occurs abundantly; and I am indebted to Miss Beever, of Coniston, for an abundant supply of living specimens from that neighbourhood: had it not been for that lady's kind and timely assistance, I should have been unable to draw up a satisfactory description of this curious plant; since in dried specimens many interesting characters are lost. In Ireland and Scotland I observed it more or less abundantly in every lake I had an opportunity of searching.

In Caernarvonshire I have found it in more than a dozen of the little lakes which abound in the Snowdon range, and this appears to have been one of the earliest recorded habitats. It was found in Ogwen, Lyn-y-Cwn, and the Lakes of Llanberis, by Llhwyd, Ray, Richardson and Dillenius, the latter of whom waded into the waters of Llanberis purposely to find it. The imagination of a botanist delights to picture the Sherardian professor in this interesting situation; his shoes, with their enormous silver buckles, and his grey-ribbed hose, are seen reposing on the strand; his important bag wig and his formidable military hat, sharply looped on three several sides, adorn his learned head; the ample skirts of his coat are gathered on one arm, whilst the other hand grasps a gold-headed cane, wherewith to uproot the brittle Calamaria. I will quote the entire passage in which this adventure is recorded; the mention of uncomfortable lodgings will be amusing to those modern botanists who have feasted in the palace-like hotel, now standing almost on the site of the philosopher's pathetic lamentation. "I found the common *Subularia folio rigido*, mentioned to grow only in Phynon Vreech, and the *Juncifolia cochleariæ capsulis** pretty plentifully, which relieved me very much of our disappointment of not seeing more Glyder plants. In the lake near Llanberis, a little further on, where you found the *Subularia fragilis*, *folio longiore et tenuiore*, cast out of the lake, I pulled off my shoes and stockings, and found it growing there in great plenty. If any

* "*Subularia aquatica*," [Sm.]

body had the means of fishing out plants from the depths of these lakes, I am inclined to think he might find strange things. Near this place, about three years ago, Mr. Evans, coming home late from a christening, in stormy and rainy weather, was drowned. His corpse could not be found by any means used for fishing. There being no parson living at the place at present, it is almost impossible for any body to go herborizing thither. We had very hard and uncomfortable lodging at the alehouse, and with difficulty got a young man to be our interpreter and guide. At last young Mr. Evans, of Bangor, gave us leave to lie at his house, and sent us provisions from Bangor.

“If some rich botanist, that has no relations or children, would build a house there, and buy some land to it, which might be done with little money, it would be a very kind invitation for botanists to visit these strange places, and be an inducement for making a collection of Welsh plants, as you proposed. Without such a fixed place of abode, it seems to me impracticable.” *

Dillenius learned from the mountaineers of the neighbourhood, that fish feed on the *Isoetes*; and that when detached from its hold in the soil and cast on shore, the cattle devour it greedily and grow fat on it.† The passage is rather obscurely worded, and its meaning seems to have been mistaken by compilers, who make it fatten the fish, and leave the bullocks out of the question.

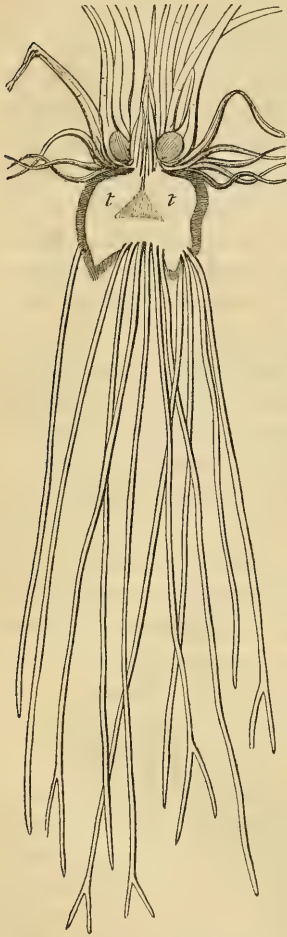
The figures by Dillenius are striking, but in some points scarcely accurate. That in the ‘*Flora Danica*’ (191) possesses none of the characteristics which distinguish the root of our British species, and this part of the drawing is either supplied from imagination or drawn from a species hitherto undiscovered in this country. The same observation applies to the figure of the capsule in ‘*English Botany*,’ (1084), where that part is represented as bivalved. Sir W. J. Hooker’s figure in the ‘*Flora Londinensis*’ is the best that I have seen, but in this there is an indistinctness in the representation of the tuber, and a reference to certain scales on the capsule, the existence of which I have been altogether unable to detect. In Loudon’s ‘*Encyclopædia of Plants*’ (894), the capsule of *Pilularia* is given as that of *Isoetes*, and that of the latter is entirely omitted.

The roots are three or four inches in length, flexible, semipellucid, of uniform substance, tubular, and sometimes dichotomously divided

* Linn. Correspondence, ii. 143.

† Referunt monticolæ pisces, quos habent optimi generis, utraque hæc herba vesci, et armenta, si projectam inveniant, avidè devorare et pinguescere. Hist. Musc. 542.

towards the extremity. They spring from a tuber, which, in mature plants, is about the size of a hazel-nut. This tuber seems analogous to what I have called a tufted rhizoma in ferns: it is of various form, commonly, however, slightly bilobed; its external coating is spongy, and of a dark brown colour approaching to black, and apparently composed of decayed portions of its substance: the interior is very compact and of a pure white, with a small and nearly pellucid portion in the centre, whence the leaves appear to originate. The taste of this tuber is earthy, but not otherwise remarkable, and it seems perfectly innoxious, as I have eaten several without injury. A longitudinal section of the tuber (*tt*) with its attached radicles, is shown in the margin. Wahlenberg says that this tuber vegetates in the interior while dying round the circumference,* a mode of accounting for its appearance which seems highly probable.



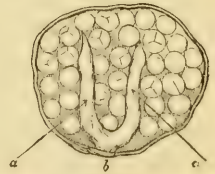
The leaves are sessile, and rise from the crown of the tuber; at the base they are very broad, and furnished with membranous margins, which clasp the inner leaves much in the same manner as the scales of a lily-bulb. With the exception of this basal portion, the leaves are nearly cylindrical, sometimes however approaching to a quadrate form, with obtuse angles, and terminating in a sharp point; they are hollow, the interior being divided by longitudinal septa into four tubes, which are again subdivided into numerous compartments by transverse septa placed at irregular distances: these transverse septa are very apparent through the semi-pellucid substance of the leaf, and give it a jointed appearance. The leaves are extremely brittle, and usually break at these apparent joints. They are persistent, — the plant being in every respect an evergreen, whence the Linnæan name of *Isoetes*,† signifying that its appearance

* Flora Lapponica, 294.

† *ισος* æqualis, *ετος* annus.

is alike throughout the year. The exterior leaves decay slowly and in order of priority, the decay commencing in each leaf about an inch above the crown of the rhizoma and extending upwards and downwards; the decayed portion soon loses its rigidity, the upper part bending over and becoming prostrate. The leaf retains its attachment long after its vitality has ceased; and numerous leaves so attached fall over the tuber and its radicles when the plant is taken from the water, and, mingling with the latter, are preserved as such in most of our herbaria. Leaves in a state of decay are shown in the figure at the head of this article.

The fructification of the Quillwort is very curious. It consists of capsules or thecæ, about the size of swan-shot, placed singly at the base of each leaf, in the very substance of which they are imbedded; only a very small portion of the capsule being visible through a circular aperture in the anterior face of the leaf. In this structure alone does it differ from *Lycopodium*, in which genus the theca is quite distinct, although perfectly sessile in the axil of the leaf, and removable without injury to the leaf itself. The substance of the theca is hard though membranous; it is attached at a single point (*b*) on its posterior surface, to something which appears analogous to a midrib of the leaf. The figure in the margin represents a theca removed from its cavity in the leaf: from its point of attachment (*b*) arise what appear to be two free placentæ (*a a*), for the attachment of the seeds, yet I cannot positively assert that such is their office, for I have never opened a theca without observing that the seeds escaped, as if entirely without attachment. Wahlenberg speaks of these bodies as being *many*;* from this statement, and that author's surpassing accuracy, I am inclined to suppose the few thecæ which I have had the opportunity of examining in a recent state to be exceptions to the general rule, especially as in the generic character of *Isoetes* in 'English Flora' (iv. 343), Sir J. E. Smith describes the capsule of the fertile flowers as having "several transverse bristle-shaped bars." The seeds themselves are rugose and perfectly white; they have raised ridges on the surface, indicating a quadruple division; indeed, when thus divided, the inferior half of each seed is nearly hemispherical, and the superior half may be again divided into



* Ex illo receptaculo fructus longitudinali oriuntur plura receptacula seminum seu partialia filiformia, &c. Fl. Lap. 295.

three sub-triangular portions. When crushed, even after the lapse of years, these seeds are found to be filled with a transparent and somewhat oleaginous fluid. Other thecæ contain apparent seeds, which are extremely minute, being scarcely equal in size to the pollen-granules of many flowering plants: these minute bodies possess the form and characters of the larger seeds. The thecæ containing the two kinds of seed are scarcely to be distinguished from each other, nor do they follow any law in their relative position, as many of our botanists have asserted, but most frequently occur alternately. Linneus, in his ‘*Iter Scanicum*,’ has described these as male and female flowers,* but botanists are not agreed as to their precise nature, the question, when discussed, must comprise the kindred twofold fructification of *Lycopodium Selaginoides*, and probably many other species: the real nature of the four portions into which each (supposed) seed is divisible, also requires further investigation. I am too superficial a botanist to offer an opinion on so important a subject.

Mr. Valentine, whose valuable paper on the structure and development of the organs of *Pilularia*, in the 18th vol. of the *Linnean Transactions*, has already been noticed in this work (*Phytol.* 55), has made some interesting observations on the germination of *Isoetes*, which I hope may eventually be given to the public.

There are two forms of *Isoetes*, so different that Dillenius, and, in some of his works, even Linneus, treat them as distinct species; thus in the passage quoted from Dillenius, at p. 154, they are designated “*Subularia folio rigido*” and “*Subularia fragilis*,” and in his great work, the ‘*Historia Muscorum*,’ the same author describes them as “The short and thick-leaved Quillwort, *Calamaria folio brevior et crassior*,” and “The long and slender-leaved Quillwort, *Calamaria folio longior et gracilior*,” and enters very clearly into their distinguishing characters.† The following paragraph from a letter of Linneus to Haller, written in 1749 and printed in Smith’s ‘*Selection of*

* *Masculi flores* solitarii intra basin foliorum interiorum. *Cal.* Squama cordata, acuta, sessilis. *Cor.* nulla. *Stam.* Filamentum nullum. *Anthera* subrotunda, unilocularis, intra basin folii sita.

Feminei flores solitarii in eadem planta, intra basin foliorum exteriorum. *Cal.* ut in masculis. *Cor.* nulla. *Pist.* occultum. *Per.* Capsula subovata, bilocularis, intra basin folii sita. *Sem.* numerosa, globosa.

† *Calamaria folio longior et gracilior.* The long and slender-leaved Quillwort. A precedenti differt foliis longioribus angustioribus et rectioribus: radix porro durior, minus tuberosa, minusque crassa est et fibræ ejus breviores sunt et magis ramosæ, cæteroquin foliorum texturam, colorem, semina et reliqua habet communia. *Hist. Musc.* 541, tab. LXXX.

the Correspondence of Linnæus, &c.' ii. 433, proves that this great botanist considered the two forms to be species.—“In Scania I have met with the flowers, male as well as female, of both species of *Calamistrum*, figured by Dillenius, in his *Historia Muscorum*, by the name of *Calamaria*.”

Gray, in his ‘Natural Arrangement of British Plants,’ makes two varieties in addition to the normal form of the plant, and describes them as follows.

β. gracilis. Leaves long, slender.

Calamaria folio longiore et graciliore. Dill. M. 541.

γ. fragilis. Leaves very brittle, slender, pointed, transparent, pores numerous, minute.

Subularia fragilis, folio longiore et tenuiore. Raii Syn. 307. 3.

By a reference to Ray* it will be seen that this *Subularia fragilis* is an addition by Dillenius, and is doubtless identical with the *Calamaria folio longiore* &c. of that author; the forms are thus again reduced to two, and concerning these Mr. Wilson, who has paid great attention to the subject, kindly sends me his opinion in the following words.

“The solitary plants with short spreading leaves, I believe to be the first full development after the seedling state, and before any lateral extension of the rhizoma has taken place: when the plants are crowded together, either by lateral increase (or offsets) or by a multitude of individuals in close contact, the fronds can grow only in an erect posture. In a specimen from Llyn Ogwen, the tallest I have, and which I cut through the middle before drying, the section of the rhizoma or tuber is very large, while in another specimen, gathered in the same place, and at the same time, the rhizoma is very small and inconspicuous; in a third specimen the rhizoma is very broad and concave at the base. The size of the tuber may depend on the age and vigour of the plant; its analogy with the rhizoma of ferns I think considerable: when a number of the outer or lower fronds have ripened and dropped off, then and not before it becomes exposed to view.”

Mr. Sansom has given the two supposed species a minute and careful examination, and has favoured me with the following remarks.—“In the diffuse variety the seeds are globular or nearly so, and the sutures in many cases very indistinct, while in the erect plant the seeds are angular, the angles appearing to be formed by the swelling of the edges of the sutures, and thus giving it an angular appearance. Again, the texture of the seed is different; in the diffuse plant it has a slightly pellucid appearance, while, in the erect variety, they are of a firmer

* Syn. Ed. 3, p. 307.

texture, appearing quite white and horny." Mr. Sansom, however, suggests, with great propriety, the probability of the seeds which he examined being in different stages of maturity; those which I have examined do not exhibit the differences which he has pointed out.

The following definitions appear to me to express the distinguishing characters of the two forms.

- a. Normal form. Fronds 6 to 15 in number, 2 to 5 inches in length, spreading, very brittle: tuber as large as a hazel-nut, slightly bilobed; radicles about as long as the leaves, rarely divided. This form is represented in the figure at the head of this article; the full length of the radicles being shown at p. 156.
- β. Slender form. Fronds 20 or more in number, 12 or 18 inches long, very erect and compact together: tuber very small, mostly to be distinguished with difficulty; radicles less than one fourth the length of the leaves, frequently divided.

The two forms grow together in the lakes of England, Scotland and Wales.

EDWARD NEWMAN.

(To be continued).

ART. LII.—*List of Plants found in Devonshire & Cornwall, not mentioned by Jones in the Flora Devoniensis, with remarks on the rarer Species.* By The Rev. W. S. HORE, M.A., F.L.S., G.S.*
Communicated by EDWIN LANKESTER, M.D., F.L.S., F.B.S.E.

It was my intention to have prepared a list of the plants indigenous to the counties of Devon and Cornwall, accompanied with remarks on the rarer species, but when I considered that a Flora of the former county existed, published about twelve years since, I determined on limiting my observations to an enumeration of such species as have since been discovered in Devon, and those which are found in Cornwall, but which have not been met with in the sister county. The latter are so few in number, that Jones's 'Flora Devoniensis' may be considered as a Flora of the two western counties, and the whole district, when geographically viewed, would induce us to arrive at the conclusion that much discrepancy could not possibly exist in their natural productions. In the eastern portion of Devon, where the geological aspect of the county begins to merge into the newer formations of Dorsetshire and Hampshire, we might indeed be inclined to expect a more distinctly marked vegetation, and some plants not to be found towards its western limits; this however is not the case, for with the exception of that singularly rare plant — *Lobelia urens*, which is confined to the neighbourhood of Axminster, no distinct plants have as yet been detected. A similar result obtains with reference to the interior part of the county, where, notwithstanding some of the torrs of Dartmoor reach the lower limits of the Upland Region of Watson, no plants characteristic of that region have been discovered, except *Listera cordata*, recently found by Mr. Ward, on Coddon Hill, near Barnstaple.

We may therefore view these two western counties, with a portion of Somerset, i. e. Exmoor and its vicinity, as forming one large botanical district, connecting England

* Read at the Meeting of the British Association held at Plymouth, August, 1841.

with Brittany and Normandy by means of the Channel Islands, and manifesting such connection by the following plants:—*Trichonema Columnæ*, *Iris fœtidissima*, *Asplenium lanceolatum*, *Erodium moschatum*, *Herniaria ciliata*, *Scilla autumnalis*, *Arthrolobium ebracteatum*, *Lotus angustissimus*, *Hypericum linariifolium*, &c. To enter into a detailed account of the geological aspect of the district would be superfluous, as Jones in his *Flora* has been at some pains to describe it accurately as regards Devon, and with the exception of the serpentine of the Lizard, the same remarks may be supposed equally applicable to the county of Cornwall.

The number of Phanerogamous species described in the '*Flora Devonensis*,' amounts to 774: to these must be added 41, for species since detected in the same county, or separated from others of which they were supposed to be mere varieties. Of these 41, 15 are also found in Cornwall. There are also 31 species peculiar to the latter county, not natives of Devon. The western *Flora* would therefore contain 846 species,—a number certainly not too great for the extent of surface included within its limits, and the variety of soil and other peculiarities which it presents.

Jones adopts the Linnæan classification, which, for convenience, I shall now follow in enumerating the additions &c. made since the publication of his work.

Veronica Buxbaumii, Ten. Occurs both in Devon and Cornwall, but not abundantly: it appears limited to the fields which have been recently ploughed, and disappears in a season or two.

Veronica polita, Fries. Not uncommon in this neighbourhood.

Pinguicula vulgaris, Linn. Mr. Ward found this plant in a bog near Ilfracombe, on the road to Morthoe. I had previously heard that it grew there.

Trichonema Columnæ, Reich. On the Warren at Dawlish. No plants were found there last year.

Fedia Auricula, Gaud. Lindulph, Cornwall, according to the Rev. Mr. Bree. Bolt Head, Devon, Mr. Babington.

Scirpus Holoschænus, Linn. Jones says of this plant that it is now probably exterminated at Branton Burrows, its only habitat, by draining and cultivation, as a search for it in the summer of 1820 was unsuccessful. Watson, in his *Botanist's Guide*, gives the following directions:—"Branton Burrows, in hollows or flats among the sand hills. The keeper of the light-house knows the plant, and pointed out one of the stations to me about half a mile to the right of the light-house." I easily found this spot last autumn, which I believe to be the only one where the plant is now to be found. Miss Hill writes me concerning it as follows:—"The large spot where those rushes grew is now covered with blown sand, but a new place has been found. I do not think the present plants so large as those I have collected at the old spot thirty years since, and much within that time."

Cyperus longus, Linn. Miss Warren informs me that it grows near Truro, Cornwall.

Scirpus Savii, Spreng. Common on the borders of Dartmoor: Cornwall.

Briza minor, Linn. Near Torpoint and Truro, Cornwall.

Cynosurus echinatus, Linn. Under the Hoe, Plymouth, but I fear an outcast from a garden.

Avena pubescens, Linn. Catdown Quarries, Plymouth.

Brachypodium pinnatum, Beauv. I have never seen this plant in Devon, where Jones says it is common.

Bromus velutinus, Schrad. var. β . On the Cornish cliffs. Sir W. J. Hooker and Mr. Johns, who first directed attention to it, now think it only a variety of *B. mollis*.

Lolium arvense, With. Corn-fields, Devon.

Cynodon Dactylon, Pers. Between Penzance and Marazion, Cornwall.

Asperula arvensis, Linn. Near Plymouth. This plant was discovered some years since by my friend Mr. Johns, but has now disappeared. As it has since been found in cultivated fields in this neighbourhood, I fear that it can hardly be recognized as indigenous.

Exacum filiforme, Sm. Jones gives Stackhouse, a Cornish botanist, as his authority for considering this species as Devonian, who says it is more common in this county than in any other. Stackhouse must have mistaken some other plant for it. There are a few habitats for it in Cornwall.

Sagina maritima, Don. Common on the coasts of both counties.

Myosotis collina, Hoffm. Very common on stone walls near the sea in April and May.

Erythræa littoralis, Hook. Banks of the Teign, Devon.

Erythræa latifolia, Sm. On the cliffs of Devon and Cornwall.

Atropa Belladonna, Linn. In hedges at Combmartin, N. Devon; possibly an escape from a garden. I was informed that the village schoolmaster used the berries in the manufacture of ink.

Lonicera Periclymenum, Linn. A variety of this honeysuckle, with leaves resembling those of the oak, grows at Bovisand.

Viola Curtisii. Abundantly on Braunton Burrows. It is very distinct in its simple mode of growth, and the elongated form of its corolla, from *Viola tricolor*.

Trinia glaberrima, Hoffm. Berryhead, Devon.

Physospermum Cornubiense, Cuss. In an oak coppice near Tavistock, about a quarter of a mile from New Bridge. Bodmin, Cornwall.

Chenopodium botryodes, Sm. Banks of Looe Pool, Cornwall.

Ulmus stricta, Lindl. N. Devon and Cornwall.

Tamarix gallica, Linn. Lizard, Cornwall.

Statice spathulata, Desf. I believe the species found near Torquay to be this plant. Whitsand Bay, Cornwall.

Allium Schœnoprasum, Linn. Among rocks at the Lizard and at Tintagel, Cornw.

Scilla verna, Huds. Lizard, Cornwall.

Erica vagans, Linn. Common at the Lizard.

Erica ciliaris, Linn. Wet ground near Truro, Cornwall.

Calluna vulgaris, Salisb. A double variety was found by Sir C. Lemon's gardener near Truro, and is now cultivated at Carlew.

Elatine hexandra, DeCand. Near Helston, Cornwall.

Reseda fruticulosa, Linn. Penzance, Cornwall.

Rubus cæsius, Linn. Catdown Quarries, near Plymouth; probably introduced with ballast.

Teucrium Scordium, Linn. Braunton Burrows.

Lamium incisum, Willd. Penzance, Cornwall.

Scrophularia Scorodonia, Linn. Penzance.

Orobanche rubra, Sm. On the serpentine district of the Lizard, Cornwall.

Orobanche barbata, Poir. Torquay, Devon.

Erysimum orientale, Br. The Rev. J. Tozer says "that it came up spontaneously in a field that had been ploughed to form a garden, in the centre of the new square at Plymouth."

Geranium sanguineum, Linn. Kynance Cove, at the Lizard, Cornwall.

Althæa officinalis, Linn. Maristowe, Devon.

Polygala oxyptera. Salcombe, Devon: Mr. Babington.

Genista pilosa, Linn. Lizard, Cornwall.

Vicia lutea, Linn. Lizard, Cornwall.

Trifolium ornithopodioides, Linn. Torpoint, Cornwall.

Trifolium incarnatum, Linn. var. β . *Molinerii*. I found this plant in two places, about a quarter of a mile distant from each other, in 1839, near the Lizard light-house. One of the localities was on the verge of the cliff, where the turf had never been disturbed.

Trifolium Bocconi, Sav. Found by Messrs. Borrer and Babington at Cadgewith, Cornwall, but in small quantity.

Lotus angustissimus, Linn. Whitsand Bay, Cornwall, with the following species. Also near St. John's, Cornwall.

Lotus hispidus, Desf. Dartmouth, Devon. Whitsand Bay and Lizard, Cornwall.

Hypericum linariifolium, Vahl. Found by Messrs. Borrer and Babington at Cape Cornwall, near the Land's End. The Rev. W. Hinckes has specimens from Devon.

Tragopogon porrifolius, Linn. Brere Church-yard, Devon.

Hypochaeris maculata, Linn. Lizard, Cornwall.

Chrysocoma Linosyris, Linn. Berryhead, Devon.

Gnaphalium dioicum, Linn. Camborne, Cornwall, as recorded in Watson's Botanist's Guide.

Gnaphalium sylvaticum, Linn. var. β . *rectum*. Shaugh Bridge, Devon.

Senecio squalidus, Linn. Walls at Bideford, Devon.

Limbarda crithmoides, Adans. Near Bovisand, Devon. Whitsand Bay, Cornwall.

Gymnadenia conopsea, Br. On a down near Helston, Cornwall.

Listera cordata, Br. Coddon Hill, Barnstaple: Mr. Ward.

Malaxis paludosa, Sw. I have only seen a single Devonshire specimen, which was gathered by a friend on Dartmoor, near South Tawton.

Euphorbia platyphylla, Linn. Torpoint, Cornwall.

Euphorbia hiberna, Linn. Near Glenthorne; Mr. Ward, jun. Near Lynton, Devon; Miss Griffiths.

Mercurialis annua, Linn. Quarries, Plymouth, possibly imported with ballast.

Asplenium lanceolatum, Huds. Several places in this neighbourhood. Penzance, Cornwall.

Hymenophyllum Wilsoni, Hook. On rocks above Shaugh Bridge, Devon.

Herniaria ciliata, Bab. Lizard, Cornwall.

Viola lutea, Huds. Land's End, Cornwall.

Arenaria verna, Linn. Lizard, Cornwall.

Stachys ambigua, Sm. Near the Land's End, Cornwall; Mr. Watson, in his Botanist's Guide.

Papaver somniferum, Linn. Near Sidmouth, Devon; and Penzance, Cornwall; Mr. Watson.

Oxalis stricta. Penzance, Cornwall.

Galium erectum, Huds. Near Plymouth; Mr. Banks.

Arthrolobium ebracteatum. On Trescan, one of the Scilly Islands.

I may also mention that two northern ferns were discovered by Mr. Ward, jun., last summer, on Exmoor and near Glenthorne, viz., *Cryptogramma crispa* and *Asplenium septentrionale*; neither of which had previously been recorded as natives of the West of England.

W. S. HORE.

ART. LIII. — *Notice of 'The London Journal of Botany,' being a New Series of 'The Journal of Botany.'* By SIR W. J. HOOKER.
London : Baillière, Regent Street.

It is with feelings of unmingled satisfaction that we announce the present spirited recommencement of this invaluable work. While we are endeavouring to render our pages as popular as scientific accuracy will permit; and while we avowedly give the preference to everything connected with *British Botany*, the 'Journal' must attract those laborious and erudite papers, which, although invaluable as works of reference, are scarcely calculated for the hasty perusal of those readers who seek in a periodical the passing information — the botanical chit-chat of the day: it must also continue to obtain those minutely descriptive latin lists of exotic novelties which have hitherto rendered its pages so acceptable to the technical botanist. Our little ephemeral will be contented with those lighter contributions — those unstudied brevities and observations which, delightful though they be to ourselves and to numbers of our readers, would detract from the scientific dignity of the graver 'Journal.'

Thus each of these botanicals will take what the other is glad to give, and so promote the prosperity of its friendly rival. Influenced by these feelings, we wish the "New Series" every success; and though our narrow limits preclude the possibility of giving anything like an analysis of the numbers as they appear, we purpose always giving a list of the articles, and occasionally transferring to our chapter of "Varieties" any paragraph relating to British Botany, which we think will be interesting to our readers. The following are the contents of the two numbers already published.

I. Notes on a Botanical Excursion to the Mountains of North Carolina, &c. with some remarks on the Botany of the higher Alleghany Mountains. (In a letter to Sir W. J. Hooker; by *Asa Gray, M.D.*) II. Notes upon Cape Orchidaceæ; by *Professor Lindley*. III. Descriptions of several New Genera of South-African Plants; by *The Hon. W. H. Harvey*. IV. Some Account of the Paraguay Tea, (*Ilex Paraguayensis*); by *The Editor*. Botanical Information: containing Notice of New British Plants—1. *Equisetum elongatum*, of Willdenow. 2. *Chara latifolia*, Willdenow. 3. *Polyporus nitidus*, Fries; the latter found by H. O. Stephens, Esq. on the decaying bark of trees near Bristol. Notices of Botanical Works. — Endlicher's *Genera Plantarum*. Endlicher's *Iconographia*. A Manual of British Algæ, &c. by the Hon. W. H. Harvey. Steudel's *Nomenclator Botanicus seu synonymia plantarum universalis* Ed. 2. Contributions to the Flora of India, by William Griffith. *Arboretum et Fruticetum Britannicum*, by J. C. Loudon. V. The Plants of the Grampians viewed in their relations to altitude; by *Hewett Cottrell Watson, Esq.* — This is a carefully prepared list of more than 400 plants; the altitude attained by each species in three different localities being given: the list is preceded by many valuable observations. VI. Description of *Trochopteris*, a new genus of Ferns; by *George Gardner, Esq.* VII. Notices of some plants new to the Flora of Britain; by *Hewett Cottrell Watson, Esq.* — Short notices of the discovery of these plants, — *Linaria Bauhini*, *Lolium multiflorum*, and *Bromus commutatus*, will be found in the Report of the Proceedings of the Botanical Society of London (Phytol. 136). Botanical Information: — Extracts of letters from Mr. Drummond, dated King George's Sound, Swan River, &c., and from Dr. F. W. Hostman, dated Paramaibo. VIII. Biographical Sketch of the late Allan Cunningham, Esq.; by *Robt. Heward, Esq.*

ART. LIV.— *Varieties.*

111. *List of Plants in the vicinity of Lytham, Lancashire.* If the following List of plants found in the vicinity of Lytham, in July, 1841, is likely to be interesting to any of the readers of 'The Phytologist,' it is at your service. —

- | | |
|---|---|
| Salicornia herbacea, salt marshes. | Alisma Plantago and ranunculoides. |
| Hippuris vulgaris, ditches. | Epilobium hirsutum and tetragonum. |
| Lycopus europæus, Lytham Common. | Pyrola media, Lytham Common. |
| Iris Pseudacorus. | Silene maritima, pastures near the sea. |
| Scirpus maritimus, Lytham marshes. | Arearia Peploides, serpyllifolia, and marina. |
| Eleocharis palustris. | Sedum acre. |
| Ammophila arundinacea, Star hills. | Spergula nodosa, Lytham Common. |
| Briza media. | Lythrum Salicaria. |
| Lolium perenne and arvense. | Agrimonia Eupatoria, Lytham Common. |
| Rottbollia incurvata, marshes. | Rubus cæsius, ditto. |
| Triticum junceum, Star hills. | Reseda Luteola. |
| —— repens. | Potentilla reptans. |
| Sherardia arvensis. | Thalictrum minus. |
| Galium verum, pastures near the sea. | Stachys palustris. |
| Plantago maritima and Coronopus, ditto. | Clinopodium vulgare, Lytham Common. |
| Parietaria officinalis. | Thymus Serpyllum, pastures. |
| Cynoglossum officinale, Star hills. | Prunella vulgaris. |
| Lycopsis arvensis. | Bartsia viscosa and Odontites. |
| Hottonia palustris. | Pedicularis palustris, Lytham Common. |
| Anagallis arvensis. | Linaria vulgaris. |
| —— tenella, Lytham Common. | Lepidium latifolium. |
| Solanum Dulcamara. | Cochlearia anglica, Lytham marshes. |
| Erythræa Centaurium. | —— danica, Blackpool. |
| Samolus Valerandi, Lytham Common. | Coronopus Ruellii, ditto. |
| Glaux maritima. | Cakile maritima, Star hills. |
| Chenopodium maritimum and olidum. | Sisymbrium Sophia. |
| Salsola Kali, salt marshes. | Brassica Monensis, Star hills. |
| Gentiana Amarella, Lytham Common. | Erodium cicutarium. |
| Eryngium maritimum, Star hills. | Malva rotundifolia. |
| Torilis Anthriscus. | Fumaria officinalis. |
| Daucus Carota. | Ononis arvensis. |
| Helosciadium nodiflorum. | Anthyllis vulneraria, pasture near the sea. |
| Sium angustifolium. | Trifolium arvense. |
| Conium maculatum. | Tragopogon major, Lytham Common. |
| Cenanthe Phellandrium. | Apargia hispida. |
| Apium graveolens. | Arctium Lappa. |
| Pastinaca sativa. | Carduus tenuiflorus, hedges. |
| Parnassia palustris, Lytham Common. | Carlina vulgaris, Lytham Common. |
| Statice Armeria, pastures near the sea. | Bidens tripartita. |
| Linum catharticum. | Artemisia vulgaris, |
| Asparagus officinalis, Star hills. | Erigeron acris, Lytham Common. |
| Triglochin maritimum and palustre, marshes. | Senecio aquaticus. |

Aster Tripolium, Lytham marshes.	Euphorbia Paralias, Star hills.
Solidago Virgaurea, Lytham Common.	———— Helioscopia.
Pulicaria dysenterica.	Sparganium ramosum and simplex.
Orchis latifolia, Lytham Common.	Urtica pilulifera, pastures near the sea.
Listera ovata, ditto.	Myriophyllum spicatum.
Epipactis latifolia, ditto.	Asplenium Ruta-muraria.
———— palustris, ditto, abundant.	— <i>N. Buckley</i> ; 22, Grafton St. Fitzroy Square, October 18, 1841.

112. *Enquiry respecting Sieber's 'Synopsis Filicum.'* Is it in accordance with the plan of 'The Phytologist' to make such an enquiry as the following to the readers of that useful periodical? On Sieber's return from Martinique and the West India Islands, he brought back a number of specimens of ferns, an account of which was published under the title of 'Synopsis Filicum,' and numbered. This is not the 'Synopsis Filicum' of Swartz, and I suspect it was a paper published in some foreign periodical. Can any of your readers inform me where Sieber's 'Synopsis Filicum' is to be met with? Sieber's ferns are well known, and his 'Syn. Fil.' is referred to by Kaulfuss and Presl; but I can nowhere meet with any account of it. Sieber's name is mentioned as an authority in the Addenda to Linnæus's 'Systema Vegetabilium,' edited by Sprengel, or the second part of the 4th vol.—*J. Riley*; Papplewick, October 28, 1841.

[Mr. W. Pamplin has kindly sent us the following reply to the above enquiry; we shall be glad to receive further information on the subject from any correspondent].

Sieber's Ferns. To the best of my belief the citation of "Sieber, Synopsis Filicum," in Presl, Sprengel, and others, does not apply to any printed publication, but rather to the numbers upon the printed tickets which accompany his collections of specimens distributed among individual purchasers.—*W. P.*

113. *Death of J. E. Bowman, Esq., F.L.S., F.G.S., &c.* The readers of the *News* will perceive in our obituary of this week the death of our estimable and respected townsman, John Eddowes Bowman, Esq., which melancholy event took place at his residence near Manchester. The *Manchester Guardian* of the 11th instant pays the following just tribute to the benevolent character and literary acquirements of the deceased, and which we insert in preference to giving any lengthened eulogy of our own:—"The death of this very intelligent and excellent gentleman, which was noticed in our last number, will be a great loss to science. He was indefatigable in the pursuit of knowledge, and his time and talents were most willingly devoted to its advancement. In his botanical and geological investigations he displayed a perseverance, activity, and acuteness, seldom surpassed; and he had no greater pleasure than in the discovery and communication of any new fact illustrative of the wisdom, power, or benevolence of the Deity. Soon after the commencement of his residence in Manchester, he became intimately acquainted with the different cultivators of kindred studies: and by the activity of his mind, and his zeal for the promotion of knowledge, no less than by the accuracy and solidity of his own acquirements, proved one of the most valuable and efficient members of the principal scientific institutions of this town and neighbourhood. His exemption from the absorbing avocations of business enabled him to concentrate his whole attention on objects of science, and to afford a kind and degree of assistance in promoting them, which few others had it in their power to give, and which it will not be easy to replace. To those who had the happiness of enjoying his private friendship he was endeared by the amiable cheerfulness

and simplicity of his manners, by his unaffected readiness to communicate information, and by his generous ardour in behalf of every object and institution connected with the diffusion of knowledge, and with the extension of the means of human virtue and happiness. Those who knew him most intimately can best appreciate his genuine piety and benevolence of heart, which formed the animating principle of his character, and pervaded every relation of his domestic life. By his associates in the Literary and Philosophical, the Natural History and Geological Societies of Manchester, his memory will be warmly cherished; and his death will be deeply regretted by the most distinguished members of the British Association, especially when they assemble in this town next year. His communications to the transactions of the Linnean, Geological, and other Societies, will form lasting evidence of his acquirements, and valuable memorials to his relatives and friends." — *From the Shrewsbury News of Saturday, December 18, 1841.*

114. *Locality of Trifolium stellatum.* It will be satisfactory to your correspondent Mr. Salmon (Phytol. p. 130), to learn that *Trifolium stellatum* is not lost at Shoreham, but still comes up in abundance every spring in its first-observed station—a low line of ballast-heaps, deposited, I am assured, before any present inhabitant of Shoreham can recollect, between the river and the wide bed of shingle on the seaward side of the river, overagainst the east end of the town. The plant flowers early, and a less abundant second crop is usually to be seen in the latter summer months. I once, several years ago, met with a few specimens among the shingle, overagainst Southwick; and again, on a part, now occupied by a quay, of the landward shore of the river, at Kingston. The immediate neighbourhood produces several plants worthy of notice, which Mr. Salmon has not enumerated; among them are *Salicornia radicans*, *Poa bulbosa*, *distans*, *procumbens* and *Borreri*, *Festuca uniglumis*, *Medicago denticulata* and *Borkhausia foetida*. *Vicia bithynica*, which grew formerly near Southwick, is now, I fear, lost; as well as *Chrysocoma Linosyris*, of which Mr. Trevelyan found a single plant about 1825. Of the plants mentioned by Mr. Salmon, I never saw there *Statice spathulata*, *Juncus acutus* or *Coronopus didyma*. The first of these grows near Rottingdean; the other two in the West of Sussex.—*W. Borrer; Henfield, Jan. 21, 1842.*

115. *Anagallis arvensis and cærulea.* Five or six years ago I planted a root of the latter in a garden, and saved the seed, which I sowed the following spring; a considerable number of the plants now come up annually from self-sown seed, but always with blue corollas; not a single specimen of the red variety ever making its appearance in the garden.—*G. H. K. Thwaites; 2, Kingsdown Parade, Bristol, Jan. 26, 1842.*

116. *Note on Crocus vernus and C. nudiflorus.* It may probably be no uncommon thing to meet with individual specimens of the wild *Crocus* having more than the regular number of stamens, divisions of the perianth, &c., but as I am not aware whether this is the case, I wish to mention that in March last, when I visited the Nottingham meadows for the long-desired pleasure of gathering *Crocus vernus*, I met with three specimens having four stamens, four lobes to the stigma and eight segments to the perianth; also one, having five stamens, five lobes to the stigma and ten segments to the perianth. Can you or any of your correspondents inform me whether the leaves of *Crocus nudiflorus* are to be looked for at the same time as the flowers of *C. vernus*, or late in the autumn after its own flowering? I saw many large patches of leaves, indeed the turf of the meadows seemed in great measure composed of them, and I hoped that they might belong to *C. nudiflorus*, but on digging for the roots, they were apparently too young for flowering, and differing in no respect but greater

height from those of the flowering roots around, I fear my hopes were ill founded. I do not know that I ever saw a more lovely sight than those meadows presented in their spring attire; they were literally "glowing with beauty." — *Anna Worsley; Brislington, February 1, 1842.*

117. *Notes on Linaria spuria and L. Elatine.* In your number for the present month (Phytol. 137) are some remarks on a monstrous form of *Linaria spuria*, by Mr. Buckman. I should not have adverted to these remarks, as the monstrosity in question is of no rare occurrence, being in fact analogous to the same deformity in the flowers of *Linaria vulgaris* called *Peloria*, but that Mr. Buckman's observations are coupled with the additional assertion that *L. spuria* and *Elatine* are probably forms of one species, he having traced the identity through "numberless intermediate stages." Now if Mr. Buckman's observations are correct, the fact derived from them is one of great interest, and should serve as an additional warning to the manufacturers of species to proceed more leisurely for the future, in the use of the first and two last rules of Cocker's Arithmetic. But I am strongly inclined to suspect Mr. Buckman of having too hastily assumed his premises; and I think the source of error may be traced *in limine* from the close resemblance *Linaria spuria* and *Elatine* bear to each other in the conformation of their lower leaves when young, these being often rounded in the latter as well as in the former, for a considerable distance upwards, and in both usually more or less notched. I have frequently been deceived myself by the similarity of configuration, but I have never seen either plant when more advanced exhibiting any such ambiguity of structure as to create a doubt to which species it belonged, though I have carefully and repeatedly examined each kind in its native localities and in various parts of England, with a view, if possible, of determining a question which their close affinity naturally suggested to me. Both *Linaria spuria* and *L. Elatine* are very abundant in the Isle of Wight; the latter may be found in every field, affecting equally our stiff clays as well as our calcareous soils; the former confining itself more exclusively to the chalk, or where the subsoil is of that formation. In many places in the island the two grow intermixed, and sometimes in such abundance as nearly to cover the ground, *L. spuria* predominating over its congener. Yet in such localities I have uniformly failed in tracing any intermediate gradations between these nearly allied species, under circumstances the most favourable to the elimination of every possible variety of form and structure; hence, till proof has been brought forward to the contrary, I am justified in considering them truly distinct. This view of the case is strengthened by the geographical distribution of each species; an element, I conceive, of much greater importance than is usually supposed in determining the validity of specific difference, though to be adduced as collateral rather than as positive evidence in most instances. *L. Elatine* has a much more extended range in this country and on the continent than *L. spuria*, which is a decidedly more southern species. The limits of the first may be stated to be a little below 55° in England, and it ranges as far as Ireland to the westward, where however it is very local, if really indigenous. In Scotland it has not hitherto occurred at all, though from part of that country lying under its limitrophe parallel in England, it will probably be found ere long to inhabit the southern counties. On the continent *L. Elatine* extends somewhat higher, namely, into the South of Sweden as far as 56°, or a little beyond that parallel in Scania and Öland, where, as in Scotland and Ireland, *L. spuria* is quite wanting. The boundaries of this last may be assumed at about 54° in England (Malton corn-fields, Yorkshire?), beyond which its occurrence on rubbish and ballast heaps must be considered

as merely fortuitous, and it sensibly diminishes in frequency in all the western counties, nor does it reach, like *L. Elatine*, to any part of the sister kingdom. On the continent *L. spuria* has apparently the same limits to the northward as with us, being absent from Denmark proper, though found in the neighbouring dutchy of Holstein under the same parallel as Yorkshire. As I have already remarked, *L. spuria* is more attached to certain soils, and to tillage lands, being rarely seen beyond the limits of cultivation, whilst *L. Elatine* I have repeatedly gathered, though sparingly, in places very dissimilar and remote from arable ground, even on heaths and in spongy bogs, by ditch-banks, &c. The *Peloria* form has not come under my notice in the Isle of Wight, but I have gathered it in corn land near Winchester, affecting both the species alike, and exactly in the way Mr. Buckman describes. It now only remains that I should notice the possibility that Mr. Buckman's "intermediate stages" may have resulted from cross impregnation, an accident to which plants of this natural order seem peculiarly liable, witness *Scrophularia*, *Verbascum*, &c. We have a beautiful hybrid occasionally produced in the Isle of Wight, between *Linaria repens* and *L. vulgaris*; it is therefore by no means unlikely that the same thing may happen with two other species of the genus still more nearly allied. The subject is well worth Mr. Buckman's investigation; and it is to be hoped that he will favour your pages with whatever conclusions he may hereafter arrive at.—*Wm. Arnold Bromfield; February 4, 1842.*

118. *Note on the British species of Tilia.* I was extremely glad to read the very interesting account of our native species of *Tilia*, communicated by Mr. Leighton in the words of Mr. Jorden, with further remarks by the former gentleman, (*Phytol.* 147); and they have, I think, like able counsel, made out a plain case in favour of their clients' claim to the rights of citizenship. Till I saw Mr. Jorden's account in your pages, I was disposed to believe the small-leaved lime (*Tilia parvifolia*) the only species really indigenous to this country, never having met with the broad-leaved ones in any situation where they had a perfectly wild appearance; but the distribution of the three species on the continent of Europe, in conjunction with the decided testimony of Mr. Jorden to their spontaneous growth in Worcestershire &c., has almost entirely, if not absolutely, removed my previous scepticism. I must however premise, that from some varieties I have observed in these trees, I am not without suspicions that *Tilia parvifolia* and *grandifolia* are the two extremities of a series, of which *T. europæa* is a middle link; but to substantiate this view of the subject would require much stronger evidence than I am able to bring forward at this moment. The genus *Tilia* seems to have its metropolis in the cooler portion of the temperate zone, a few species extending into the warmer parts only, where the increase of temperature is modified by humidity of soil or elevation. *Tilia parvifolia* is the most northern form or species, and the only one found native in Norway, Sweden, and the northern provinces of the Russian empire, ranging in Scandinavia to $63^{\circ} 30'$, and in Russia to at least 60° , being frequent in woods about St. Petersburg. The broad-leaved species, *T. europæa* and *grandifolia*, predominate in the vast forests that cover the extensive plains of central and eastern Europe between 55° and 50° , in Poland, Lithuania, and the more southern governments of Russia, where Pallas tells us ('*Flora Rossica*') the small-leaved lime (*T. parvifolia*) is rarely met with. The famous honey of Konow in Lithuania is gathered by the bees from the blossoms of a broad-leaved lime, which is there said to constitute entire forests, and is doubtless the same species as that of the bark of which the Russian bast or matting is manufactured. Proceeding farther south, we find in

France, Switzerland, and the North of Italy, the three forms or species of the lime-tree affecting elevated or even mountainous situations, rarely descending into the plains unless favoured by concomitant humidity and consequent diminution of temperature. In these parts the small-leaved lime is almost supplanted by those of more ample foliage. From the consideration of their geographical distribution from north to south, there seems no reason why all these three species or varieties of the lime should not occur wild in Britain, but local causes may combine to give predominance to one or other of them in particular. Thus the general low average of our summer temperature, resulting from the combined moisture and cloudiness of the atmosphere, even in the South of England, may and indeed does dispose to the production of northern species or varieties under parallels of latitude which, in countries where the sun's influence is less impaired by absorption of his rays in passing through a misty medium, or the actual interception both of heat and light by dense masses of vapour, would rather favour the development of southern forms of vegetation. We are geographically nearer the wine region of Europe than to any part of the Scandinavian peninsula along our southern coast, yet does the character of our vegetation partake more of a northern type than would be inferred from the consideration of latitude alone. I believe also our entomological productions approximate more to those of Sweden and Denmark than to the same tribes in France or Germany. In accordance with these facts we might expect that of all the three species of *Tilia* native to Britain, the small-leaved lime (*T. parvifolia*) would predominate with us, as being the more frequent one towards the north, and such appears to be the case. I can vouch to having seen *T. parvifolia* truly wild and abundant between Halstead and Sudbury, in various places along the road in hedge-rows and copses, and I found a wood between Bury and the village of Whepstead, about six miles distant, quite full of this species, but kept down by periodical lopping to the dimensions of a shrub. Mr. Abraham of Exeter told me that there were woods of *T. parvifolia* about Buckleigh in Devonshire, which Mr. H. C. Watson seems to think adverse to the idea of its being indigenous there, a conclusion the very reverse of that I should arrive at, since this species is by far the least ornamental of all our limes, and of little or no value as timber, nor have I ever heard of its being planted to any extent for copsewood. The very large wood of *T. parvifolia* near Shrawley in Worcestershire, mentioned by Mr. Lees, is another instance in point, were farther proof wanting to substantiate the claim of this species at least to rank as native with us, which was the opinion moreover of the cautious and scrutinizing Ray, as also of Evelyn. I would suggest whether Lyndhurst in the New Forest, may not be derived from a wood (hurst) of limes (linden) now no longer existing, as I find both *T. parvifolia* and *europæa* in old hedgerows about Lymington occasionally, which is not very distant from the former place, but I dare not venture to pronounce either certainly indigenous there. Evelyn seems to hint at the existence of *Tilia europæa* as a native tree, when he speaks of our wild limes as having "a somewhat smaller leaf" than the cultivated, and as apt to be *civilized*! that is, improved or made larger by transplanting. Gerarde, too, if I remember right (for he is not now at my elbow to ask the question of), refers to this or *T. grandifolia* as growing in the woods of Northamptonshire, under the then common denomination of *Tilia fœmina*, and Stokenchurch woods in Oxfordshire were till lately said to have produced both the broad-leaved species. Again, Mr. Ward, of Richmond, in Watson's 'New Botanist's Guide,' finds *T. grandifolia* truly wild on Clink Bank, near that town; and my excellent friend Mr. Borrer has observed a lime growing abundantly in a hill-side copse in Sussex, the sta-

tion for which, an apparently truly wild one, he pointed out to me in an excursion we made to Beachy Head, in the autumn of 1840. From the periodical cutting of the brushwood not permitting the trees to acquire a flowering size, Mr. Borrer cannot with certainty refer them to their species, I understand however that they belong to the kinds with broad foliage. Other stations for *Tilia europæa* and *grandifolia* are given both in England and Scotland, as at Boxhill, Streatham, Blair Athol and near Edinburgh, but from what has been just said of the distribution of the broad-leaved limes, it is not probable that they are indigenous to the latter country. In Ireland *T. parvifolia* is the only really *indigenous* species recorded by Mr. Mackay ('Flora Hibernica') on the authority of Templeton, and this is what we might expect from the nature of the climate of that island. Mr. Leighton's observations on the differences between our three limes (now I trust fully established as aboriginal in Britain), are made with his accustomed accuracy. *Tilia parvifolia* in particular is, as generally seen, an extremely well marked species, from its smaller, more numerous and much later flowers, and their weak leathery capsules, besides the other striking features so ably pointed out by Mr. Leighton; yet varieties do present themselves with most puzzling and aspiring tendencies to emulate the umbrageous honours of their more "*civilized*" fellow species.—*Id.*

119. *Additional Facts on Monotropa Hypopitys.* Mr. Wilson, I see (Phytol. 149), objects to my view of the parasitic growth of *Monotropa*; and the difficulty of the subject is shown, when even with the aid of the microscope so acute an investigator could not arrive at positive certainty, even with respect to the "woolly substance" investing its roots. This hairy envelope, I still think, is part of the economy of the plant, having found it present in every specimen, and appearing to my observation to be wound about the *young tubers* of the *Monotropa* and the rootlets of the beech, at their junction with each other. No doubt it may be detached from the clustered fleshy radicles of the *flowering plants*, and from the shrinking of the beech-roots the connexion, with the nicest observation, appears dubious. Had Mr. Wilson, however, the harsh oolitic soil of the Cotswolds to deal with, as I had, instead of the sand of Lancashire, and seen me working at my task for a week, he would scarcely have imputed to me a want of *care*, in so far as I had conducted the investigation. Anxious only to elicit truth, I have stated what appeared to my observation with ordinary appliances, being desirous, if possible, to render the matter clear to general observation; nor does it follow that due care was not employed because I had no facilities for microscopic dissection close at hand. A powerful double lens, my pocket companion for years, certainly *Ithurielizes* my sight to some extent, and as far as it goes may be depended upon. It appeared to me, then, that the fleshy clustered radicles of the *Monotropa*, about which there can be no doubt, had ultimate fibres, spongioles or suckers, *connecting them with the rootlets of the beech*. But as I have stated throughout, young tubers must be examined for this, the "woolly substance" about the old plants, whatever it is, being too inextricably entangled to allow us to arrive at any certainty as to the nature of its connexion. I shall here, however, just state an *additional fact*, confirmatory of my views, and I invite other botanists to examine the subject, with a perfect freedom from prejudice. Wishing to see if the young plants I had obtained from among the beech-roots could be kept alive, I immersed two in a tumbler of water, where they remained about a month, when, as they made no progress, I took them out for preservation, and placed them in the sun to dry on a piece of white paper. To my great surprise I found them, some days after, *affixed to the paper as if glued thereon*,

nor could they be shaken off; while a lens, on examination, *plainly showed* very minute hair-like fibres or suckers proceeding from the fleshy tubers of the young *Monotropa*, and *binding it down to the paper*. Unfortunately, one of these fixed plants (which thus appear at least *curiously to have simulated a parasitical growth*) was trodden upon through an accidental fall of the paper, but the other remains affixed as at first; and I hope to induce some friend, more skilful at microscopical dissection than I profess to be, to examine it. What I find remarkable, and I write from careful reiterated observation on specimens collected by myself, is the diversity in the size of the clustered roots, from old ones possessing numerous rudimentary stems, to small tuberous knobs where the buds are scarcely discernable with the naked eye. In these last, more especially, I find the fleshy tubers closely applied to and even twisted round the beech-roots, so that I cannot separate them without violence, even after having possessed them above four months. In a specimen now before me, after immersion in water, a beech-root just at its entrance among the clustered radicles of the *Monotropa*, is obviously thickened, and covered by them in an imbricated manner, just as if melted glue had been laid on with a brush. The subject is of course, as I have myself intimated, open to further elucidation, and I have only had the opportunity of the inspection, carefully made, however, which I have already recorded, (*Phytol.* 98). Yet though opinions may differ as to the real nature of the attachment of *Monotropa* to the roots among which it is found nestled, I should think that botanist rash who, in the present state of the enquiry, and without having watched the plant from its first germination, should absolutely affirm that it is *not* parasitical. I may here state that all my mature flowering specimens of *Monotropa*, as well as the young plants, are perfectly *erect*, and in only one instance can I perceive the *slightest* indication of a bend at the summit of the stem. As Mr. Wilson is at issue with me as to the *scent* given out by the plant, and “counts noses” against me, it is but fair to hear *my* evidence as to the odorous influence exercised by *Monotropa* upon the olfactory nerves in Worcestershire. Without mentioning my own impression, I presented three mature plants in seed, which were gathered in September last, to a lady, and requested her this morning to smell them. She had no sooner done so than she instantly exclaimed—“*Beautiful! just like the Mezereon!*” This, be it remembered, is after the lapse of nearly five months; but when I had about fifty fresh plants together, the fragrance proceeding from them was so powerful as to scent the room they were in for weeks, and was instantly perceptible on opening the door. As I have stated, the impression of the fragrance on *my* senses assimilated to that of primroses, although of course much more powerful; assuredly “a raw potato” is the last and lowest simile that would have occurred to me as a comparison of its odour.—*Edwin Lees; Malvern Wells, February 8, 1842.*

120. *List of Algæ from Guernsey.* We know so very little of the marine Botany of the Channel Islands, that I am induced to send you the following very imperfect list of Algæ for insertion in ‘*The Phytologist.*’ The collection from which I prepared it, was made in Guernsey last summer, by Mr. D. Ross of Lasswade, who, not being an algologist, merely took such species as came in his way. This will account for the absence from the list of various common plants, as well as of a large number of species which have such a general resemblance to each other as to cause them to be passed over by individuals unacquainted with their forms.—*R. K. Greville; Edinburgh, February 10, 1842.*

<i>Fucoideæ.</i>	<i>Florideæ.</i>	<i>Ptilota plumosa</i>
<i>Cystoseira ericoides</i>	<i>Delesseria sanguinea</i>	<i>Ceramieæ.</i>
granulata	sinuosa	<i>Polysiphonia thuyoides</i>
fœniculacea	alata	fruticulosa
fibrosa	<i>Hypoglossum</i>	spinulosa
<i>Halydrys siliquosa</i>	ruscifolia	atrorubescens
<i>Fucus vesiculosus</i>	<i>Nitophyllum punctatum,</i>	nigrescens
serratus	[v. ocellatum	fastigiata
canaliculatus	laceratum	byssoides
<i>Sporochnoideæ.</i>	<i>Rhodomenia laciniata</i>	<i>Dasya coccinea</i>
<i>Desmarestia ligulata</i>	jubata	<i>Ceramium rubrum</i>
aculeata	palmata	diaphanum
<i>Dichloria viridis</i>	<i>Plocamium coccineum</i>	ciliatum
<i>Dictyoteæ.</i>	<i>Rhodomela subfusca</i>	<i>Griffithsia equisetifolia</i>
<i>Dictyota dichotoma</i>	pinastroides	setacea
<i>Dictyosiphon fœniculaceus</i>	<i>Laurencia pinnatifida</i>	<i>Callithamnion Turneri</i>
<i>Punctaria latifolia</i>	tenuissima	tetricum
<i>Asperococcus echinatus</i>	<i>Chylochladia ovalis</i>	<i>Chatophoroideæ.</i>
<i>Ectocarpeæ.</i>	kaliformis	<i>Myrionema strangulans</i>
<i>Cladostephus verticillatus</i>	articulata	<i>Conserveæ.</i>
spongiosus	<i>Gigartina purpurascens.</i>	<i>Conferva rupestris</i>
<i>Sphacelaria scoparia</i>	confervoides	lævirens
cirrhosa	acicularis	pellucida
<i>Ectocarpus tomentosus</i>	plicata	<i>Siphoneæ.</i>
<i>Chordarieæ.</i>	<i>Chondrus mamillosus</i>	<i>Codium tomentosum</i>
<i>Corynephora marina</i>	crispus	<i>Ulvaceæ.</i>
<i>Spongiocarpeæ.</i>	membranifolius	<i>Ulva latissima</i>
<i>Polyides rotundus</i>	<i>Brodiaei</i> [lius	Linza
<i>Furcellarieæ.</i>	<i>Sphærococcus coronopifo-</i>	<i>Enteromorpha compressa</i>
<i>Furcellaria fastigiata</i>	<i>Gelidium corneum</i>	

121. *True office of the Earth in relation to Plants.* Although so much has been written on the subject of gases evolved and absorbed by plants; on the form and functions of the stomata or mouths of plants; and on the obvious numerical preponderance of the stomata in the leaves and branches over those in the roots; yet the broad assertion that the office of the earth in relation to plants is precisely equivalent to its office in relation to animals — namely, to maintain them in the position best suited to their well being — has, I believe, never yet been made in print. Almost as long ago as I can recollect, this phytological fact was impressed forcibly on my mind by seeing how beautifully hyacinths blossom with their roots immersed in water and without a particle of earth that they could possibly reach. I have constantly asserted my belief on this point, but have always been laughed at as a visionary and theorist. It is, however, with infinite satisfaction that I see my views slowly gaining ground. Each succeeding year diminishes the number of those who assert that plants feed on the earth as we feed on meat and bread and potatoes: still, by far the larger portion of conversing mankind religiously believe this, and most of our farmers look on a rich soil as being as directly food for their wheat as a sack of barley-meal is food for their pigs. Now the truth is the very converse of this: the earth feeds on plants—is increased by plants—owes what is called its richness and good properties to plants. These facts are not only interesting in themselves, but the ends to which they are applicable would

furnish almost a new era in existence. It can scarcely be doubted that nature has provided, in the earth, the best possible receptacle for the roots of plants; yet even this position will admit of considerable modification, for we have first to consider whether our object in cultivation is to carry out the designs of nature, or to make nature subserve our artificial requirings; if the latter, it is quite certain that art can be advantageously applied: we have but to call to mind our commonest fruits and vegetables as examples. Thus, although plants may best achieve their destined ends when rooted in the earth, it may reasonably be doubted whether in turning their good properties to our uses a more advantageous receptacle may not be found. But without extending the enquiry so far as this, if it be once admitted that earth is in no wise the food of plants, then, *cæteris paribus*, the most unproductive sand, for instance, the heaths of Surrey, may be rendered as productive as the Golden Valley: we have only to make use of this sand, as nature intended it, for a receptacle of roots, and then having learned what is the true food of plants, to supply that food in the most profitable way. It is now generally admitted that carbonic acid gas is the food of plants; but leaving even this question to those more competent to decide on it correctly, it is quite certain that their food, whatever it may be, is evolved in greater quantities from certain chemical preparations than from the richest and most highly manured earth. Poverty of soil thus becomes a nonentity: rotation of crops a mere amusement: once admit that earth is simply a receptacle for roots, and you invest it with a property which you cannot wear out. Every common and heath may be made to produce wheat at the will of the cultivator, and the supply must ere long greatly exceed the consumption; that very description of food, the supply of which causes such difficulty to all our legislators, becoming more abundant than our most zealous philanthropists could desire.—*Edward Newman*; 65, *Ratcliff Highway*, February 12, 1842.

122. *New British Equisetum*. We have received from Francis Whitla Esq., of Belfast, a very fine *Equisetum*, hitherto unnoticed as British, the *Eq. elongatum* of Willdenow; a southern plant, indeed, but of which, as is well known to be remarkably the case with some other plants that have been supposed to be peculiar to warmer skies, the range has extended to Ireland. Mr. Whitla found it in mountain glens, near Belfast. * * Our specimens are $2\frac{1}{2}$ and 3 feet long. If the roughness of the stem, its great length and ramification, and elongated teeth of the sheaths, and the apiculus of the spikes be considered, it cannot be confounded with any other of our native species.—*London Journal of Botany*, p. 42.

123. *New British Chara*. *Chara latifolia* of Willdenow. This fine species of *Chara*, which I have no hesitation in stating to be new to Britain, occurred in great abundance in Belvidere Lake, Co. Westmeath, where I collected it in August last. The great size and semipellucid appearance, at once struck me as remarkable. The main branches are striated and covered with raised rough points, as are the first joints of the whorled ramuli, while the remaining portion consists only of one pellucid tube, which is thicker than the lower joint, and ends in a sharp point. The branches of the whorls are again beset with smaller ramuli (not bracteæ), in which respect it differs from all our species in the opaque division. I regret I could not find the [species in] fruit, neither globule nor nucule was present; though I examined hundreds of specimens in various parts of the lake, where it sometimes covered the bottom to the extent of many square perches; and what is singular enough, all the other species in the opaque division occurred abundantly in the same lake, and were all in full fruit, each preserving its respective character.—*D. Moore*; in *London Journal of Botany*, p. 43.

ART. LV.—*Proceedings of Societies.*

LINNEAN SOCIETY.

December 21, 1841.—Read: 1. Extracts from a letter to Mr. Solly from Mr. Griffiths, giving a summary of the results of observations made by him on the development of the embryo in *Santalum*, *Viscum*, *Osyris* and *Loranthus*, as well as remarks on the reproductive organs of *Isoetes*. 2. A paper by Mr. Miers, containing descriptions of new plants, viz., *Solenomeles chinensis*, previously published under the name of *Cruikshankia*, which name had been appropriated to another genus: and two species of the new monocotyledonous genus *Distrepta*,—*D. vaginata* and *oblita*. 3. A letter from Mr. Bidwell of Sydney, containing a description of a new *Araucaria*, which attains the height of 200 feet, and about 100 feet of the stem is frequently without branches: also of *Nuytsia floribunda*, in the botanic garden at Sydney, in the embryo of which three cotyledons have been discovered by the author.

January 18th, 1842.—Robert Brown, Esq., V.P. in the chair. In consequence of the decease of Aylmer Bourke Lambert Esq., V.P. one of the founders of the Society, no papers were read at this meeting.

February 1st.—The Bishop of Norwich, President, in the chair. Read, a paper on the development of the embryo in *Tropæolum majus*, by Dr. Jerrold. The changes which take place in the ovule and embryo, from the first appearance of the former to the perfect formation of the latter, were minutely detailed.

February 15.—Robert Brown, Esq., V.P. in the chair. This being the evening appointed for the election of a person to fill the joint offices of Clerk, Librarian and Housekeeper, vacant by the lamented death of Professor Don, there was an unusually large attendance of Fellows. The chairman briefly announced the object of the meeting, stating that two candidates had offered themselves for the joint offices—Mr. Kippist and Dr. Lemann, and that balloting papers had been prepared in accordance with the laws of the Society. The Secretary having read the laws relating to the election of Librarian &c., the ballot forthwith commenced and continued until 9 o'clock, when a scrutiny of the votes was taken and the result handed to the President, who stated the numbers to be,—for Mr. Kippist, 87, for Dr. Lemann, 69; and declared Mr. Kippist duly elected.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, December 9, 1841.—Professor Balfour, and subsequently Professor Graham, in the Chair.

Contributions to the herbarium were announced from Lady Keith Murray, and seven other members. The specimens from her ladyship were particularly admired for their beauty and fine state of preservation.

After the election of several members, the various office-bearers for the ensuing year were chosen, including Prof. Christison, President; Dr. Greville, Prof. Traill, Sir Wm. Jardine, Bart. and Professor Balfour, Vice-Presidents; Mr. Brand, W.S., Secretary and Treasurer; Mr. Joseph Dickson, Corresponding Secretary; Mr. Edward Forbes and Dr. Douglas MacLagan Foreign Secretaries.

The following communications were read.—

1. On the Groups *Triandra* & *Fragiles* of the genus *Salix*. By the Rev. J. E. Leefe, Audley End, Essex. "Whoever would study the willows with success, must see them growing at different seasons of the year; for fragments gathered at one season only, serve but to perplex and confuse the botanist. Another source of confusion is the practice of collecting specimens, without numbering them and the tree, trusting subsequently for identification to the memory alone, whereby a most unpleasant feeling of uncertainty is produced. The changes in the form of the leaves, and in the relative proportion of some of the parts of fructification at different periods of growth, are often so surprising, that without a mark of recognition, I should frequently have doubted whether my specimens had been all collected from the same tree. Again, it is a common practice to select for preservation the largest and most vigorous-looking specimens, in consequence of which an erroneous idea of the average character is very apt to be produced. If an unusually luxuriant specimen be chosen, it should have a corresponding label." The author proposes the cultivation of the more intricate species of the genus in gardens, in order that their variations may be regularly observed: and in continuation recommends the adoption of a practice followed by himself:—"I should advise that the specimens of every *Salix* in a herbarium (excepting, of course, species about which there can be no mistake), should be such as to present one or more regular series illustrative of the progressive development of the catkins, each set being taken from the same tree at intervals during the flowering season,—and that at least two specimens of the leaves, gathered at different periods, should be preserved, so as to show the form of the stipules, and the progressive alteration in the foliage;—also, that thin sections of a catkin of each species, perpendicular to the axis, should be gummed down, by which means the form of the ovarium and any other particular respecting it—the length and pubescence of its stalk, the nectary, the character of the axis, and the number of ovaria in a given length of the spiral, could easily be seen without mutilating the other specimens. The exact date also of each specimen should be registered, whereby many ambiguities would be removed. For instance, it is common to find characters derived from the relative proportion borne by the nectary to the ovarium; but this varies greatly, as a dated series of specimens would immediately make evident,—sometimes, as in the *viminalis* group, from $\frac{1}{2}$ to $\frac{1}{4}$. Good specific characters frequently disappear in the drying process,—for instance, the furrowed shoots of *S. amygdalina*, which afford an excellent mark of distinction from *S. Hoffmanniana* in fresh specimens, cannot be relied upon when the specimens are dry, owing to the shrinking of the bark." After some remarks on the willows as occurring at Audley End, the author gives a description of each species in the above groups.

2. On three newly proposed species of British *Jungermannia*. By Dr. Taylor, Dunkerron. Communicated by Mr. William Gourlie, jun.

3. Remarks on the Flora of Shetland, with a full catalogue of plants observed in these Islands. By Mr. Thomas Edmonston, jun. The author observed that the Botany of Shetland had never been adequately investigated. Dr. Neill, who spent ten days or a fortnight there in 1804, was the first to enter upon this field, and he was followed by Dr. Gilbert M'Nab, who spent a few weeks there in 1837. Mr. Edmonston (a native of Shetland) has devoted the last four years to this agreeable pursuit, and in that time has visited the whole district. Two years ago, he transmitted to London a list of the plants which had then been observed by him, and this list, though incomplete, and, in some instances, inaccurate, made its appearance lately in the 'Annals of Natural History,' without any previous intimation, so that he had no opportunity of correcting it. The Orkney Islands, which are numerous, stretch about 70 miles from S.E. to N.W. Their geological formation is altogether primitive; the most abundant rocks being gneiss, granite and limestone, which are very generally covered by large tracts of peat moss, and often destitute of all vegetation excepting the commonest bog plants. Unst is the most northerly island, and is also the most diversified in its formation; gneiss, mica slate, chlorite slate and serpentine being all found on it. Its vegetation is equally varied, some of the species being peculiar to it in Britain, and others being rare elsewhere. The most interesting of these, viz., *Arenaria norvegica* and *Lathyrus maritimus*, were discovered by Mr. Edmonston when he was little more than twelve years of age. Ronas Hill, which attains an elevation of about 1500 feet, is the highest land in Shetland, and it is only upon it that the botanist meets with anything like alpine vegetation. The largest island, usually called the Mainland, presents little of interest, but is, for the most part, a succession of dreary peat moors, occasionally enlivened by *Scilla verna* and *Pinguicula vulgaris*; nor are the other islands generally more productive, though sometimes a fertile spot occurs. "The general character of Shetland vegetation," says Mr. Edmonston, "seems to be subalpine, or nearly so, for we find plants belonging properly to that region, in every situation, such as *Thalictrum alpinum*, *Draba incana*, &c., which grow down almost to the sea level." The list of species which accompanied this paper, comprehends 395, viz., 286 phanerogamic and 109 cryptogamic,—the latter consisting of 22 ferns, 65 mosses and 22 hepaticæ.

4. Account of a Botanical Excursion in Norway. By Dr. John Shaw. The circumstance that most struck Dr. Shaw in this tour, is the almost total absence of *Calluna vulgaris*, which covers our Scottish moors, but which in Norway is so far from being common, that throughout an extent of 600 miles, he "could scarcely find a specimen of it." He also remarks on the extreme wildness and sterility of some tracts, as contrasted with the fertility and luxuriance of vegetation in others. The species which he observed were in general the same as those which grow in Scotland,—those not indigenous here being in about the proportion of 1 to 5; but several plants which are extremely rare in this country, such as *Menziesia cærulea*, *Pyrola uniflora* and *Linnæa borealis*, he found abundant in many places. He was also particularly gratified by the beauty and luxuriance of *Trollius europæus*, of which he observed "myriads, with their corollas like half pounds of butter, gracefully waving their heads, almost in the frozen region."—Condensed from the Report in 'The Edinburgh Evening Post and Scottish Standard,' of December 15, 1841.

BOTANICAL SOCIETY OF LONDON.

February 4th, 1842.—Dr. Willshire in the chair. Specimens of the following plants were presented:—*Chara latifolia*, Willd. found at Belvidere Lake, Westmeath, in August, 1841, by Mr. D. Moore, of the Dublin Glasnevin Garden; *Equisetum elongatum*, Willd. from Collin Glen, near Belfast; both presented by Mr. D. Moore.* *Æcidium Thesii*, Leefe, collected at Hildersham, near Linton, Cambridgeshire, by The Rev. J. E. Leefe, and presented by him. *Cistopteris alpina*, Link, collected at Low Layton, Essex, and presented by Mr. E. H. Button. British plants from Mr. J. Riley, Mr. S. King, Miss Roods and Mr. Mitchell; foreign ferns from Mr. J. Riley; British fungi from Mr. H. O. Stephens; and a collection of British woods from Mr. T. Twining, jun.

A paper was read by Mr. Adam Gerard, "On the Botany of Kotgurk" in the Himalaya, taken from the notes of Captain Patrick Gerard, of the Bengal Native Infantry. Kotgurk is surrounded on three sides by thick woods, in which the *Rhododendron* flourishes; they and the neighbourhood abound in pines, oaks and almost every tree, shrub and plant, indigenous to Europe, besides many others unknown. Amongst the latter is a species of small red bamboo, which grows all over the higher mountains, attains the height of 8—12 feet, and is used for a variety of domestic purposes. The following were mentioned as the chief vegetable productions:—Rice, several kinds, mostly of the coarser sort; Jow, or barley; Oowa jow, (*Hordeum celæste*); Kunuk, or wheat; Phuphura or phuphur, (*Panicum tataricum*); Chuberee, or Jaburee, the grain of which differs little in appearance from that of the Phuphur and Oogul; opium in considerable quantities for export; three species of Bathoo (*Amaranthus Anardhana*); various kinds of pulse; a small quantity of cotton and ginger on the banks of the Suthy and other rivers; Indian corn, limited. The Jow ripens earliest; the Oowa jow and Kunuk fully a month later. In elevated situations in the neighbourhood the crops are often very backward, the wheat especially, which is frequently not housed until the rainy season has set in, and is sometimes reaped in a green state. The climate and other peculiarities were fully described.—G. E. D.

* See page 173.

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No. XI.

APRIL, MDCCCXLII.

PRICE 6D.

ART. LVI. — *On British Species and Varieties of the Genus Sagina.*
By SAMUEL GIBSON, Esq.

Hebden Bridge, February 10, 1842.

SIR,

The following descriptive list is drawn up from specimens of *Sagina* in my own herbarium: I have thus endeavoured to furnish a few materials towards the history of this difficult genus. Probably some of the forms may hereafter be considered distinct species; but not presuming to decide on that point, I leave it to the better judgment of others. If you should consider the list worthy a place in the 'Phytologist,' it is at your service.

SAML. GIBSON.

To the Editor of 'The Phytologist.'

Genus. — *SAGINA*, *Linnæus*.

Capsule 1-celled, 4-valved, many-seeded: petals 4, (shorter than the calyx or entirely wanting): stamens 4: styles 4: sepals 4.

1. *S. apetala*, Linn. Plant annual, glaucous, reclining but not taking root. Stems rough with scattered points: leaves, each tipped with a very distinct awn or bristle, slightly combined by their membranaceous bases, linear, about a quarter of an inch long, fringed at the edges with jointed hairs: flower-stalks erect, smooth, about an inch long: calyx ovate, obtuse, about one third shorter than the capsule; segments with narrow membranaceous margins: petals entirely wanting: seeds nearly smooth, variable in shape, with their edges crenate.

On moist, barren, sandy ground. Common in many parts of Lancashire. I gathered this plant in 1840, on the Bolton road, about two miles from Manchester; and have specimens of it from Marple, &c.

β. *stricta*, mihi. Plant quite upright: stems and leaves ciliated with jointed hairs: flower-stalks set with *stalked glands*: seeds smooth, with their edges dentate.

This variety differs from the above in being always upright, and having glandular flower-stalks. On the muddy banks of the river Mersey, opposite Liverpool, in June, 1831. I gathered this plant in Wallazey Pool, in June, 1841.

γ. divaricata, mihi. Plant upright in a young state, decumbent with age: seeds rough, keeled at the back, keel crenate.

This variety is prominently distinguished, not only by its divaricated mode of growth, but by the great dissimilarity of its seeds. It appears to be somewhat rare, as I have specimens from one locality only, namely, the garden walks of P. M. James, Esq., Sumerille Irlams, on the heights near Manchester, communicated to me by *Mr. W. Charlton*.

δ. prostrata, mihi. Plant with numerous stems, all spread quite flat on the ground, dark green, hairy: leaves short (about one eighth of an inch long), hairy: flower-stalks and calyces quite smooth: seeds as in *a*.

The prostrate habit of this plant at once distinguishes it from every other form of *Sagina apetala*. On the walks of neglected gardens in Halifax &c.; apparently not very uncommon, as I have a specimen from Cornwall, and have also seen others from Richmond, in Yorkshire.

ε. setacea, mihi. Plant upright, *very slender*, from two to five inches high: stems few, smooth, leaves about one quarter of an inch long, narrow, membranaceous at the base, their edges ciliated, each tipped with a very short bristle: seeds smooth, dentate on their back.

The very slender and upright habit of this at once distinguishes it from every other form of the plant. Apparently not very common: my specimens are from Richmond in Yorkshire.

ζ. glabra. (*Sagina apetala*, *β. glabra*, Babington, 'Primitiæ Floræ Sarnicæ,' p. 15). Plant nearly upright: stems and leaves smooth, the latter tipped with a very distinct bristle: flower-stalks and calyces set with minute stalked glands, the two outer sepals mucronate.

For specimens of this variety I am indebted to *Mr. Babington*; they are from Jersey.

η. levis, mihi. (*Sagina maritima* of the Manchester Flora, p. 14). Plant nearly upright, smooth in every part

Closely allied to the foregoing, but differing in the flower-stalks and calyces being destitute of the stalked glands so conspicuous in that variety. This appears to be the most common form of *Sagina apetala*. Perhaps this and the last might be considered two forms of one distinct species: the two outer sepals of the calyx being mucronate, together with the absence of hairs from the leaves &c., would serve to distinguish them from every other form of *Sagina apetala*. My specimens are from the walls of Bowden Church-yard, given to me by the author of 'Flora Mancuniensis;' also from Brandon Hill, &c. by *Mr. Grindon*; and Greenwich Park, *Mr. Luxford*. In 1835 I gathered it at Selby, and in 1836 on the magnesian limestone at Garforth, six miles from Leeds.

2. *S. maritima*, Don. Plant annual, smooth. Stems prostrate, divaricated: leaves short, broad in proportion, thick and blunt, combined by their membranous bases: flower-stalks slender: segments

of the calyx broad, ovate, obtuse, with narrow membranous edges : petals none : capsule shorter than the calyx.

All my Scottish specimens answer to the above description.

β. erecta, mihi. Plant upright, smooth, very slender : leaves narrow, long in proportion, tipped with a very short bristle : capsule longer than the calyx.

The more slender and upright habit of this variety, combined with its longer capsule, will serve to distinguish it from the above. My specimens of this plant I gathered in Wallasey Pool, Cheshire, in June, 1841, where I found all our three species of *Sagina* growing together. My Warrington specimens differ but little from this. I have also a specimen of the *Sagina maritima* from Devonport, communicated to me by Mr. Luxford, that exactly agrees with my Warrington plants.

3. *S. procumbens*, Linn. Perennial. Stems one to ten inches or more in length, spreading on the ground and taking root at their joints, leafy : leaves evergreen, combined at their base by a thin membrane, ribbed, linear, about one to three quarters of an inch in length, very smooth, often tipped with a minute bristle : flower-stalks short, smooth, often drooping : calyx-leaves broad, ovate, obtuse, with very narrow membranous edges : petals (if present) ovate, obtuse, about half the length of the calyx.

This species grows in damp shady places everywhere. Smith tells us that the leaves of *Sagina procumbens* are three-ribbed ; this character I have not been able to find in any of the forms of the plant : nor have I ever been able to find the seeds of any species of *Sagina* bordered with a black ring.

β. pentandra, mihi.

This differs from the above only in having a fifth part added to the whole fructification. Rare : my specimens I found at Dob-royd near Todmorden, in July, 1840.

γ. nodosa, mihi. Stems procumbent, densely crowded, strong and woody, bearing at their joints moss-like tufts of leaves, which are about half an inch in length, each tuft bearing a solitary flower-stalk.

This singular-looking variety I found in the town of Malton, September, 1838.

δ. maritima, mihi. Root branched at the crown : stems few, very short, prostrate, disposed in a circular form.

The very small size of this variety, combined with its circular mode of growth, will at once distinguish it from the common state of the plant : probably the maritime locality of this little variety will account for the difference. Found at Crosby, near Liverpool, in June, 1841.

ε. spinosa, mihi. (*Sagina procumbens*, var. *β. spinosa*, Baines's 'Flora of Yorkshire.')

This differs from the normal state of *Sagina procumbens* in the edges of the leaves being margined with minute diaphanous spines. Found at Halifax, Shibden, near Leeds, Hebden Bridge, &c. &c.

ART. LVII. — *A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Concluded from p. 145).

Arum maculatum. Common.

Acorus Calamus. Near Britton Ferry, (Mr. Player).

Typha latifolia and *angustifolia.* Cromlyn Bog, in abundance and great luxuriance.

Sparganium ramosum and *simplex.* Near Singleton and Neath.

———— *natans.* Cromlyn Bog and Singleton Marsh, in the old Red-jacket Canal.

Potamogeton pusillus and *crispus.* Neath Canal.

———— *heterophyllus* and *natans.* Cromlyn Bog.

Ruppia maritima. In the Neath Canal.

Triglochin maritimum and *palustre.* Cromlyn Bog and Loughor Marsh.

Alisma Plantago. Ditches and marsh near Singleton.

———— *natans.* Cromlyn Bog and near Singleton.

———— *ranunculoides.* Sketty Bog; ditches near Singleton; Cromlyn Bog. Formerly plentiful on the boggy parts of Sketty Burrows, which are now enclosed; and found by Mr. Moggridge in Tennant's Canal, near Coed-y-allt, (Dillwyn).

Iris Pseudacorus. Common on all the marshy ground near Swansea, Mumbles road and Cromlyn Bog.

— *foetidissima.* At Gelly Evan, near Penllergare, where the Spanish *Iris xiphioides* has continued to flourish with it for more than thirty years at least. *Iris foetidissima* also grows in Gower, (Dillwyn).

Spiranthes autumnalis. On the Town Hill and Mumbles.

Neottia Nidus-avis. In a small wood near Pontardawe, (Dillwyn); and in woods about Pont nedd Vechn, Ystradgunlais and Penrice.

Ophrys apifera. On the lawn and in the wood of Penrice Castle, (Dillwyn).

Asparagus officinalis. Near Loughor, and also on Worms Head and the coast near Meadows between Cowbridge and the sea, about Cardiff, and at Singleton. In Martyn's edition of Miller's 'Gardener's Dictionary' it is denied that the "sparrow-grass" of our gardens is the same species; and it would be interesting to ascertain whether the young shoots of the wild plant possess the same flavour, and the effect of removing them to a richer soil.

Allium vineale. Common near Port Tennant.

Scilla verna. On the lime-stone hill between the Mumbles and the light-house; on the Worms Head and other places in Gower, plentifully.

Paris quadrifolia. In the woods about Britton Ferry and near Kilvay Bridge, in Nicholston wood and other woods in Gower. It not unfrequently occurs with five leaves; and the Rev. G. E. Smith, in his Catalogue of the Phænogamous Plants of South Kent, says that the flower then frequently follows the quinary division, presenting five sepals, five petals, ten stamens, five styles and a five-celled capsule. About Devon I have frequently found the plant with six, and sometimes with seven leaves, and have never observed any variation from the usual quaternary arrangement of the flowers, (Dillwyn).

Tamus communis. Near Singleton.

Butomus umbellatus. Cromlyn Bog and Neath Canal.

Juncus acutus. Neath Canal, and sand hills of Cromlyn Bog and Newton Nottage.

Juncus conglomeratus. Near Kilvey Hill.

— *bufonius*. Near Neath Canal.

— *lampocarpus*. Near Cwmbola Colliery.

— *glaucus, effusus, compressus* and *uliginosus*.

Narthecium ossifragum. Near Cwmbola, in the boggy ground and on the Town Hill.

Rhynchospora alba. Singleton.

Eleocharis palustris and *multicaulis*. Neath Canal and Singleton.

— *acicularis*. Town Hill, Port Tennant, Sketty and near Fenoni.

Cladium Mariscus. In great luxuriance on Cromlyn Bog.

Isolepis setacea and *Savii*.

Scirpus lacustris. Near Uplands, on the road from Fenoni.

— *cæspitosus*. Town Hill.

Eriophorum angustifolium. Cromlyn Bog. Common on turfy soil on the mountains, (Dillwyn).

Carex dioica. Cromlyn and Sketty Bogs, and boggy places about the waterfall at Aberdylais, (Dillwyn).

— *stellulata*. Singleton Marsh.

— *curta*. Cromlyn and Sketty Bogs.

— *arenaria* and *vulpina*. Mumbles Road.

— *pendula*. About the waterfall at Glynhir, near Llandeby, (Dillwyn).

— *strigosa* and *limosa*. Cromlyn and Sketty Bogs.

— *recurva*. Singleton Marsh.

— *riparia*. Cromlyn Bog.

— *ampullacea*. Cromlyn and Sketty Bogs, and boggy places about the waterfall at Aberdylais, (Dillwyn).

Ophiurus incurvatus. Near Port Tennant.

Lolium perenne. Kilvey Hill and Port Tennant.

Nardus stricta. Sea-side and marsh near Loughor.

Hordeum murinum. Common.

— *pratense*. Near Port Tennant.

— *maritimum*. Not uncommon on the sea-shore, (Dillwyn).

Brachypodium sylvaticum. Between Swansea and Port Tennant.

Triticum repens. Mumbles road.

Alopecurus bulbosus. Found in Cardiff Marshes and about the Aust passage, but some specimens that have been gathered in this neighbourhood, and have been mistaken for it, are nothing more than varieties of *Alopecurus geniculatus*. *A. bulbosus* appears to have been chiefly founded by Linnæus on the *Gramen myosurioides nodosum* of Ray, Syn. t. 20, fig. 2, which may possibly be different; and as there is no specimen in the Linnæan herbarium, it can only, at most, be regarded as a very doubtful species, (Dillwyn).

— *geniculatus*. Common near Port Tennant.

Phalaris arundinacea. Near Singleton.

— *canariensis*. On a dung-hill by the new road to the Infirmary.

Phleum pratense. Near Singleton.

— *arenarium*. Mumbles road.

Ammophila arundinacea. Banks at Cromlyn and Singleton.

Agrostis vulgaris. In a field near Kilvey Hill and Port Tennant.

— *alba*, and var. *β. stolonifera*. Near Port Tennant and St. Helen's.

Agrostis Spica-venti ? In a field near Kilvey Hill.

Arundo epigejos. Between the Ferry and Port Tennant.

—— *lanceolatus*. Common.

Arrhenatherum avenaceum. Between the Ferry and Port Tennant, common; Mumbles Road.

Holcus lanatus. Near Port Tennant.

—— *mollis*. Neath Canal.

Cynosurus cristatus. In fields near Singleton and Mumbles road.

Aira præcox. On Kilvey Hill.

—— *cæspitosa*. Common.

Trisetum flavescens. Near Port Tennant.

Phragmites vulgaris. Near Port Tennant and Dannygraig.

Dactylis glomerata. Near Port Tennant. This grass everywhere best resists the copper-smoke.

Bromus asper. Common.

—— *diandrus*. Town Hill.

Festuca vivipara. On Cefn Bryn; and it appears to me to be nothing more than a variety of *Festuca ovina*, (Dillwyn).

—— *duriuscula*. Near Singleton and about Port Tennant.

—— *gigantea*. Common.

—— *bromoides*. On the sand hills and road-side.

—— *loliacea*. In moist pastures about Pont Nedd Vechn, on the skirt of the wood near the four-mile stone by the side of the Gower road from Swansea, and several other places, (Dillwyn).

Glyceria aquatica. Cromlyn Bog and banks of Neath Canal.

—— *fluitans*.

Sclerochloa loliacea. Between the Infirmary and the sea-shore at Singleton, and at Penrice, where it was found by Dr. Turton.

—— *rigida*.

—— *distans*, (retroflexa, Curt.) Llandwr Marsh.

Poa trivialis, *pratensis* and *annua*.

Scolopendrium vulgare. On old walls and the fissures of wells, not uncommon.

Ceterach officinarum. Near Park, Gower Inn, &c., not common.

Polypodium vulgare. Cromlyn Bog.

—— var. *γ. cambricum*. On rocks in the Neath Valley. I have occasionally met with a barren frond more or less laciniated, (Dillwyn).

—— *Phlegopteris*. About Uscoed Eynon Garn, Uscoed Hendry and the Ladies' Fall, near Pont Nedd Vechn, and about the waterfall at Glynhir, near Landebie, (Dillwyn).

—— *Dryopteris*. On rocks in the deep glens about Pont Nedd Vechn, (Dill.)

Polystichum Lonchitis. Cilhepste Falls, (Mr. Player).

—— *lobatum*. Not uncommon on shady hedge-banks.

Lastræa Oreopteris. Plentiful in hedges on Town Hill.

—— *Thelypteris*. Cwmbola, Sketty bogs and marshy ground in the neighbourhood

—— *Filix-mas*. Everywhere.

—— *spinulosa*, var. *β. dilatata*. Cwmbola.

Cystopteris fragilis, var. *γ. dentata*. Kilvey Hill.

Asplenium Trichomanes. Common near Britton Ferry and Gower Inn.

- Asplenium viride*. In crevices of the rocks at the upper Cilhepste waterfall, near Pont Nedd Vechn, and at Darran yr Ogof, near Ystradgunlais, (Dillwyn).
- *marinum*. On rocks and walls near Oystermouth, and along the coast of Gower, common, (Dillwyn). Very plentiful in Bacon's Hole.
- *Ruta-muraria*. Common on walls near Swansea.
- *lanceolatum*. Town Hill, near Swansea.
- *Adiantum-nigrum*. Park and Pennard.
- Athyrium Filix-femina*. Town Hill.
- Pteris aquilina*. Town Hill.
- Lomaria spicant*. Common in the hedges.
- Adiantum Capillus-Veneris*. Common on the cliffs of lias at the eastern end of the county. I have never seen it on mountain limestone, or nearer to Swansea than Dunraven, (Dillwyn).
- Osmunda regalis*. Common and in great luxuriance in ditches by the road-side and other moist places. In the summer of 1839 I found, near Cwmbola, the root of one plant measuring at least between four and five feet in circumference.
- Botrychium Lunaria*. On the lawn in front of Penrice Castle, and occasionally found in Nicholston Wood, and other woods in the neighbourhood, (Dillwyn).
- Pilularia globulifera*. About the borders of Llynfach, on the mountain eastward above Aberpergwm, (Dillwyn).
- Equisetum fluviatile*. Cromlyn Bog and other bogs in the neighbourhood.
- *arvense* and *palustre*. Near Singleton.
- *sylvaticum*. Near Cwmbola; Drymma wood, between Neath and Swansea.
- *limosum*. Banks of Neath Canal.
- *hyemale*. Penllergare and Cromlyn Bog, where Mr. Moggridge states it to be abundant.
- Andræa alpina*. About Llyn Vach, near Aberpergwm.
- Dryphyscium foliosum*. Plentiful on rocks at the waterfalls about Pont nedd Fiske, and at a small fall on Bryn Cois; near Cadoxton, (Dillwyn).
- Tetraphis pellucida*. On a decaying tree near Pont Nedd Vechn; and it has been found by Mr. Woods, with *Funaria Muhlenbergii*, about the ruins of Caerphilly Castle, (Dillwyn).
- Weissia verticillata*. Found by Mr. Woods on the rocks about Barry Island, and I suspect that a species which has been gathered from the rocks in Gower, is the same. I believe *Grimmia maritima* has also been found in this neighbourhood.
- Trichostomum polyphyllum*. On rocks about Pont Nedd Vechn, and several other places, (Dillwyn).
- Dicranum cerviculatum*. On dry turfey banks in several places, and is probably common, (Dillwyn).
- *heteromallum*. Town Hill.
- Tortula unguiculata* var. *humilis*. On a hedge-bank near St. Helen's, and appears to me to be different from *T. unguiculata*, (Mr. Ralfs).
- Polytrichum commune* and *urnigerum*. Plentiful about the waterfalls in the neighbourhood of Pont Nedd Vechn, (Dillwyn).
- Bryum ventricosum*. About Uscoed Hendry, near Ystradgunlais, and the waterfalls about Pont Nedd Vechn.
- *ligulatum*. Britton Ferry.
- Bartramia pomiformis* var. *crispa*. On hedge-banks near Penllergare, (Dillwyn).

- Bartramia ithyphylla*. On rocks above Uscoed Hendry, near Ystradgunlais and Pont Nedd Vechn, (Dillwyn).
- Pterogonium Smithii*. Plentiful on the trees between the house and gardens of Penrice Castle.
- Hypnum populeum*. Gathered by myself many years ago in a wood near Bryn Mill, and I believe it has been found in Cline Wood, and other places, (Dillwyn).
- *alpinum*. Gathered by Mr. Woods at Uscoed Eynon Gam, and by myself at Darran yr Ogof, above Ystradgunlais, and it appears to us to be distinct from *Hyp. plumosum*, (Dillwyn).
- *sericeum*. Mumbles Castle and Common.
- *commutatum*. On wet rocks at Darran yr Ogof, and is quite distinct from *Hyp. filicinum*, which grows about Uscoed Eynon Gam, (Dillwyn).
- Marchantia polymorpha* and *hemisphærica*. Cromlyn Bog.
- Jungermannia asplenoides* and *epiphylla*.
- Endocarpon miniatum*. Mumbles Castle.
- Parmelia saxatilis*.
- Peltidea venosa*. On Pennard Castle.
- Cladonia uncialis*. Swansea sands.
- Chara translucens*. Found by Mr. Ralfs in Cromlyn Bog.
- *flexilis* and *hispida*. Pools in Cromlyn Bog and canal.
- *vulgaris*. Port Tennant.
- Halidrys siliquosa*. Near Mumbles light-house.
- Fucus vesiculosus*, *serratus* and *canaliculatus*. Mumbles and Swansea sands.
- Himanthalia Lorea*. Not unfrequently washed on shore during storms at sea.
- Desmarestia ligulata*. Not unfrequently picked up, particularly after a storm in the summer months, on the shores of the Mumbles and Caswell Bay, but I do not recollect having found it in a growing state, (Mr. Ralfs).
- Dichloria viridis*. On the shore, among rejectamenta of the sea; not common.
- Elaionema villosum*. Rocks in the sea, about the Mumbles Point; not common.
- Dictyota dichotoma*. On rocks in the sea, not uncommon.
- *atomaria*. In pools among the rocks by the Worms Head, (Dillwyn). In Bracelet Bay, abundant and very fine.
- Chorda Filum*. Swansea sands.
- Cladostephus verticillatus*. On rocks in the sea on the coast of Gower, but not so common as *C. spongiosus*, which abounds on this and I believe on every other shore, (Dillwyn).
- Sphacelaria filicina*. Found in a pool at Bracelet Bay.
- *scoparia* and *cirrhusa*. Bracelet Bay; pools among rocks at Mumbles Point.
- Dumontia filiformis*. Bracelet Bay; the Mumbles.
- *β. crispata*. On rocks in the sea, not uncommon.
- Halymenia furcellata*. Occasionally found among the rejectamenta on the sea-shore.
- Iridaea edulis*. Near the Mumbles light-house.
- Polyides rotundus*. Bracelet Bay, and near the Mumbles light-house.
- Furcellaria fastigiata*. Swansea sands; in pools among the rocks at the Worms Head.
- Delesseria sanguinea*. Pools in Bracelet Bay. This beautiful species is not unfrequently thrown on the sea-shore.
- *sinuosa*. Pools by the Mumbles light-house; and it sometimes attains the

length of 5 or 6 inches in some large sheltered pools among the rocks at the Worms Head, (Dillwyn).

Delesseria Hypoglossum. Pools in Bracelet Bay; abundant among the rejectamenta on the sea-shore.

Nitophyllum punctatum. This has frequently been found among the rejectamenta on the sea-shore, (Dillwyn).

———— *Gmelini*. Pools by Mumbles light-house and in Bracelet Bay.

———— *laceratum*. Pools in Bracelet Bay, where I have gathered some particularly fine specimens.

Rhodomenia Palmetta. Bracelet Bay.

———— *ciliata* and *palmata*. Mumbles light-house.

Plocamium coccineum. Mumbles; Langdon Bay.

Rhodomela subfusca. Bracelet Bay.

Laurencia obtusa. Found among rejectamenta at the Worms Head, (Dillwyn).

———— *dasyphylla*. On rocks in the sea at the Mumbles, (Dillwyn).

Chyloccladia ovalis. Pools among the rocks in Caswell Bay, and about the Worms Head.

———— *kaliformis*. Sometimes found among the rejectamenta of the sea, (Dill.)

———— *articulata*. Bracelet Bay.

Gigartina confervoides and *plicata*. Bracelet Bay.

Chondrus mamillosus and *crispus*. Swansea sands and Bracelet Bay.

Phyllophora rubens. Mumbles; rocks in the sea at the Worms Head.

Gelidium corneum. Bracelet Bay; rocks in the sea at the Worms Head.

Ptilota plumosa. On rocks in the sea; and the var. *β. capillaris* of Turner, with the frond jointed much in the manner of some Confervæ, is very abundant, (Dillw.)

Polysiphonia parasitica. Among the rejectamenta of the sea, not common, (Dillwyn).

By the Mumbles light-house.

———— *atrorubescens*. On rocks in the sea along the coast of Gower, (Dillwyn).

———— *nigrescens*, *fastigiata* and *elongata*. Bracelet Bay.

———— *urceolata* var. *β. patens*. On stems of *Laminaria digitata* in Bracelet Bay.

Dasya coccinea. Bracelet Bay.

Ceramium rubrum. Swansea sands.

———— *ciliatum*. This beautiful species grows with *Cer. diaphanum*, in great perfection, in the rocky pools about the Worms Head.

Griffithsia equisetifolia. Rocks in the sea, not uncommon.

———— *setacea*. Bracelet Bay and on the coast of Gower.

Callithamnion plumula. Bracelet Bay; poor specimens.

———— *roseum*. Rocks in the sea, along the coast of Gower, not very common, (Dillwyn).

———— *polyspermum*. Common on rocks near high-water mark.

———— *tetricum*. Bracelet Bay and Mumbles light-house.

———— *tetragonum*. In pools among the rocks in Llanglan and Caswell Bays, and elsewhere on the coast of Gower; generally parasitical on a *Fucus*.

———— *thuyoides*, *Turneri* and *Rothii*. Bracelet Bay.

———— *repens*. In the sea; common on other Algæ, (Dillwyn).

———— *purpureum*. In the cavern under the Mumbles light-house, and other caverns in Gower, where it gives the rocks almost the appearance of being covered with purple velvet, (Dillwyn).

Callithamnion lanuginosum. By the Mumbles light-house.

Batrachospermum moniliforme. In a small brook that runs to the upper end of Cline Wood, and other clear streams, (Dillwyn).

Bulbochæte setigera. Found by Mr. W. W. Young, in a rivulet near Cadoxton, (Dill).

Draparnaldia glomerata. In a small stream which crosses the Gower road, on Cline Common. *Conferva mutabilis* of the 'British *Confervæ*' is different, and is generally a much more common species, (Dillwyn).

———— *tenuis*. In rivulets and springs, growing on various substances, and I rather doubt whether it belongs to this genus, (Dillwyn).

Chætophora endiviæfolia. Cromlyn Bog, near the first bridge on the right hand side going to Neath.

Conferva fontinalis. In a small piece of new garden-ground on the road to Mumbles, formerly waste land.

———— *vesicata*, (alternata, *Dillw.*) In a rivulet near Swansea, (Dillwyn).

———— *tripartita*. In ditches between Pontardulais and the sea, and it may possibly be a variety of *Conf. rivularis*, (Dillwyn).

———— *dissiliens*. On aquatic plants in ditches on Cromlyn Bog, (Dillwyn).

———— *tortuosa*. Rocks in the sea on the coast of Gower.

———— *implexa*. By the Mumbles light-house.

———— *melagonium*. In almost all the pools near low-water mark by the Mumbles light-house and Bracelet Bay, but seldom more than a few threads in a pool.

———— *ærea*. Pools near high-water mark, at Mumbles and by Salt-house Point.

———— *flacca*. In the sea, parasitical on other Algæ, (Dillwyn).

———— *fucicola*. By the Mumbles light-house.

———— *flaccida*. On *Halidrys siliquosa*, in a pool near the Mumbles light-house; found by Mr. Ralls, who had never before seen it except on *Cystoseira*.

———— *curta*. In the sea, parasitical on *Fuci*, not uncommon, (Dillwyn).

———— *carnea*. On marine *Confervæ* in the river near Loughor, (Dillwyn).

———— *crispata*. Found by Mr. W. W. Young, in pools and ditches near Newton Nottage, (Dillwyn).

———— *pellucida*. Found among rejectamenta of the sea in Caswell Bay.

———— *diffusa*. On rocks in the sea, (Dillwyn).

———— *rupestris*. Mumbles.

———— *latevirens*. Common on rocks in the sea, and I believe it to be quite distinct from *Conferva glomerata*, (Dillwyn).

———— *lanosa*. By Mumbles light-house.

Sphæroplea punctalis. In a pool on the moor north of Cefn Bryn, where, soon after my work on the British *Confervæ* went to press, I first found it with the filaments conjugated, (Dillwyn).

Codium tomentosum. Among the rejectamenta of the sea, rare, (Dillwyn).

Bryopsis plumosa. Near Mumbles light-house, in Bracelet Bay.

Vaucheria multicapsularis. Common on clayey banks in high and exposed situations throughout the neighbourhood.

Stigonema atro-virens. On wet rocks which form the banks of the river above the fall at Aberdylais, and other similar situations.

Scytonema myochroum. In a mountain torrent near Pont Nedd Vechn. I cannot but think it has much affinity with this genus, and have a note that it belongs, as

also on the authority of Miss Hutchins's *Conferva scopulorum*, to the section Coadonatæ of my arrangement, (Dillwyn).

Calothrix nivea. Plentiful in the sulphur-springs of Llanwrtyd, and it abounds in other sulphur-springs, both in Great Britain and on the continent, nor have I ever seen it in any water that is not impregnated with sulphuretted hydrogen, (Dillwyn).

———— *distorta*. Found by Mr. W. W. Young in a rivulet near Cadoxton, (Dill.)

———— *mirabilis*. On stones and stems of Musci in the stream which runs through the wood at Penllergare, (Dillwyn).

Oscillatoria vaginata. Plentiful on rocks and stones in the river which runs through the wood at Penllergare.

Porphyra laciniata.

Ulva latissima and *Linza*. Mumbles, the latter by the light-house.

Bangia fusco-purpurea. Discovered by Mr. W. W. Young on lime-stone rocks about high-water mark, near Dunraven Castle; and my *Conferva atro-purpurea* may possibly belong to the same species, (Dillwyn).

Enteromorpha compressa. Bracelet Bay.

Mycinema fulvum. On the ruins of Oystermouth Castle, and the chapter-house at Maryam.

Chroolepus aureus. On stones by the side of the Gower road, near the 4th mile-stone from Swansea, and some other shady places, (Dillwyn).

Protonema umbrosum. Boggy ground by Singleton wood, and at Penllergare, (Dill.)

———— *muscicola*. First discovered on hedge-banks in a lane on high ground between Gower and Loughor roads, and it is common, growing generally on mosses, in the woods at Penllergare, (Dillwyn).

Desmidiium Swartzii and *mucosum*. Cromlyn Bog.

Isthmia obliquata, *Diatoma marinum* and *Gomphonema paradoxum*. Bracelet Bay.

Schizonema Smithii. Bracelet Bay, and pools among rocks at Mumbles Point.

———— *Dillwynii*. On rocks near low-water mark under the Mumbles light-house.

J. W. G. GUTCH.

ART. LVIII.—*Varieties*.

124. *Chrysosplenium alternifolium* is found growing on the borders of a stream in Ashworth wood, two miles from Bury, Lancashire, along with *Chrys. oppositifolium*. Here also I have found a variety of the last-named plant, a specimen of which I send you, with three instead of two opposite leaves.—*N. Buckley*; 22, Grafton St. Fitzroy Square, December 4, 1841.

125. Note on *Primula elatior*, &c.* 'The Phytologist' appears to me to offer to botanists, particularly those residing in the country, great facilities for making known any observations they may make relative to the science, and especially with regard to our indigenous plants; and to afford such persons a valuable medium through which they may communicate, and direct the attention of others to, any particular circumstances connected with the habitats of doubtful species. By the publication of such

* See also pp. 191 and 192.

facts, sufficient data might in time be gained to enable botanists to arrive at some just conclusion as to the merits of the individuals in question. The furtherance of this design is the object I have in view in writing this letter; the immediate subject of which is an account of the conditions under which I have found *Primula elatior* growing, and which, in my opinion, bear much on the question of its right to be considered as a distinct species, or as a hybrid production between *P. veris* and *P. vulgaris*. The only locality in which I have chanced to find *P. elatior*, has been at Chinham, near Basingstoke, Hants, where I have found it in tolerable abundance for several successive years. The meadow in which it grows is, as most of the meadows in our "woodlands" are, surrounded either by hedgerows or coppices, which distribution of wood and meadow is peculiarly favourable for the hybridization of such plants as *P. veris* and *P. vulgaris*; the former growing in abundance in the open meadows, and the latter in equal profusion in the hedgerows &c., while the two species intermix, as might be expected, along the border of the field, in which situation the oxlip is found, not extending into the meadow with the cowslip, nor into the wood with the primrose, which it might be expected occasionally to do, were it a distinct plant. Having found the oxlip under the conditions above mentioned, I have for some time considered it in my own mind as a hybrid production; being however aware that it is unsafe to draw conclusions from a solitary instance, I send this communication to your journal, in the hope that some of your correspondents may be induced to detail any circumstances under which the plant may have occurred to them, with a view to the settlement of the question. In the same situation I have not unfrequently met with the variety which has both the single and the manyflowered stalks on the same individual.—*Robt. Southey Hill; Teddington, February 21, 1842.*

126. *Seasons of Crocus nudiflorus.* Miss Worsley was probably correct in supposing that the longer-leaved Crocuses in Nottingham meadows, were plants of *Crocus nudiflorus*, (Phytol. 167). The leaves of that species appear above the ground in winter, and are in perfection about March or April, lasting some time longer. They are thus much forwarder in their growth than are those of *C. vernus*, at the usual time of flowering for the latter species. The root (or, technically, the *cormus*, not root) of *C. nudiflorus* appears to be naturally less than that of *C. vernus*, and it would necessarily be small in the early part of the year, when the new bulb was forming. It is well known to every botanical physiologist (though I have had to explain this to each of three gardeners successively in my service, who injured the flowering of the plants through ignorance of the fact) that the Crocus forms an entirely new cormus every year; the new one growing at the bases of the leaves, and within the pale sheaths that envelope the lower parts of the leaves. The position of the new cormus is immediately above the old one, which gradually withers away, and finally drops off in the shape of a flat plate or scale from the base of the new one. It is stated, indeed, in Mr. Francis's recently published 'Grammar of Botany,' that the new cormus is developed underneath the old one; but this is impossible physiologically, as the slightest reflection must convince any botanist at all conversant with the laws of vegetable development. Should this paragraph be printed in 'The Phytologist' for April, it may be suggested to any young botanical readers, to pull up a common crocus, and examine the half-grown new, and the half-withered old cormus. The former will be found uppermost, and its position at the bases of the leaves will illustrate the ordinary formation of the stems of Monocotyledonous plants; the crocus "root," as it is commonly called, be-

ing a flattened palm-stem in miniature.—*Hewett C. Watson ; Thames Ditton, March 2, 1842.*

127. *The Genus Tilia.* Sir William Hooker still appears to class the three species (if species we must call them) among the introduced trees of Britain; all of them being distinguished by the (*) in the last edition of the 'British Flora.' Mr. Lees and Dr. Bromfield have half convinced me that *Tilia parvifolia* and *T. europæa* are genuine Britons; but with regard to *T. grandifolia*, it seems to me that the evidences are greatly short of proofs. I allude to the genus just now, in order to remark that some of your correspondents probably do not know *T. grandifolia*; the specimens sent under this name, from the western counties, to the Botanical Society of London, seem all to belong to *T. europæa*. Specimens should be gathered in seed, when the prominent angles of the fruit in *T. grandifolia* will prevent ambiguity or error. The number of flowers, the outline of the leaf, and the disposition of the hairs, are too variable to be relied on as certain characters. There are so few really natural woods in England, that the existence of a wood of lime-trees almost authorizes a conclusion that the wood was originally a plantation. Our remote forefathers did not plant the same trees that we do, nor for the same purposes. With them a quick-growing tree might have been better worth planting than one of slow growth, even though producing superior timber.—*Id.*

128. *Discovery of Leskea pulvinata*, Wahl. As the addition of *Leskea pulvinata* (Wahl. in 'Flora Laponica,' 369) to the British Flora has not hitherto been announced, I may state that I had the good fortune to discover it near York, on the 30th of October, 1841; and have since ascertained it to occur abundantly about the roots of trees, and on low bushes in situations liable to be inundated by the Ouse. I forbear at present offering any description of this elegant little moss, as I have not yet gathered fruit with perfect *opercula*, and cannot hope to do so earlier than September next. Its closest affinity is with *Leskea polycarpa*, Hedw. (*Hypnum medium*, Dicks.), from which the faintly-nerved (occasionally nerveless) leaves sufficiently distinguish it.—*Richard Spruce ; Collegiate School, York, March 4, 1842.*

129. *The Council of the Botanical Society of London* have issued a set of "Regulations for the Exchange and Distribution of Specimens." These Regulations are chiefly interesting to members, being intended for their guidance in the exchange of plants with the Society. We are glad to see that the Council intend to follow up the frequently-expressed determination of the Committee of the Botanical Society of Edinburgh, to reject all imperfect and ill-dried specimens that may be sent in. The necessity for this public expression of such a determination on the part of the two Societies, shows how little understood is the really simple and easy process of drying plants.

ART. LIX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, January 11, 1842.—Professor Christison in the Chair. The following papers were read.

1. *Notes on preserving the Colour of certain Vegetables by immersing them in hot water:* by Mr. Evans. It is well known to every one who has had any experience in the drying of specimens, that, while many plants are easily preserved by the ordinary means of placing them between layers of absorbent paper, and subjecting them to certain degrees of pressure—there are others that cannot be so readily dried; and some are even so constant in their tendency to turn black in drying, that this feature has been deemed characteristic of them. The use of hot water, as a means of accelerating the process of desiccation in certain vegetables, has been long known to botanists; but the author is not aware of its having been employed, to any extent at least, as a means of preserving their colours. To Mr. Peter Henderson, one of the gardeners at Melville Cas-

tle, the chief merit of this application is due—he having, last summer, succeeded by it in preserving *Lathræa squamaria* and some other plants, which ordinarily become black in drying, particularly *Asperula odorata*, *Melampyrum pratense*, *Agraphis nutans*, *Rhinanthus crista-galli*, and several Orchideæ. During the summer and autumn, Mr. Evans tried the same method, and found that, besides the greater beauty of the specimens thus treated, they could be dried in nearly one half of the time usually required, as also that, from the power of hot water in destroying rigidity, they were much more easily arranged on the drying paper. Mr. Evans observed that while he and his friend, in pursuing this method, were guided almost entirely by the nature of the plants subjected to the process, they considered from twenty to thirty seconds a medium time to keep Orchideæ and other plants of a robust and fleshy nature in the water, which was always kept boiling; while a mere dip was found sufficient for those of a more delicate structure. He is, however, of opinion that the success of their method is not to be entirely attributed either to the temperature of the water used, or the exact time the plants are kept in it, but depends much on the frequent changing, for some time, of the paper in which they are afterwards placed; as unless this is strictly attended to, the specimens will be speedily destroyed by the great quantity of water with which they are at first surrounded. It has been recommended, as a means of freeing the plants from external moisture before placing them in the drying paper, to press them gently between cloths; and this he considers beneficial for plants of a robust nature, but rather injurious to the more delicate ones,—to these he merely gives a gentle shake, but changes the papers sooner about them than the others. Mr. Evans concluded by observing that, besides the utility of this method for retaining the colour of the leaves of such plants as naturally become black in drying, it will be found serviceable in preserving the blue colour of the corollas of Campanulas and some other plants, which rather incline to turn white.

The specimens exhibited by Mr. Evans in illustration of his success, were most beautiful—the colour being in almost all of them perfectly retained; and to show that it was their previous immersion in hot water which had effected this object, he had purposely kept some portions of them out of the water, and in such instances, only the immersed parts had retained their natural colour.

2. *Notice relative to certain Species found in the Parish of Alvah, Banffshire; with a list of Plants observed in that parish:* by the Rev. A. Dodds. Communicated by Mr. W. A. Stables.—The chief interest of this paper arose from the contrast which it presented between the south and north parts of Scotland, in regard to the occurrence and comparative frequency of several species: the recent occurrence of some which have now become generally disseminated, to the farmer's great annoyance, such as *Senecio Jacobæa*, and the gradual disappearance of others which were formerly common, as *Arctium Lappa*, &c.

3. *Description, with drawing, of a Vegetable found on the Gills and Fins of a Goldfish:* by Mr. Goodsir.—In this interesting paper Mr. Goodsir gave a minute description of the parasite, explaining practically its form, structure, mode of fructification, &c., but the fish having died during its conveyance to town, and putrefaction having commenced before he saw it, his observations were necessarily imperfect on some points which he had felt anxious to illustrate. Professor Christison stated, that above a year ago he had noticed a similar parasite on a goldfish, which was entirely covered with it as with a soft down, but the animal's health did not seem at all affected, and he believed it was still alive—nor was the affection communicated to other fishes which were put for some time in the same vessel with it. Mr. Bennet also stated the result of some microscopical observations made by him on Mr. Goodsir's fish, chiefly with reference to the condition of the animal under the invasion of its vegetable foe.

4. *Remarks on the affinities subsisting among Viola lutea, arvensis and tricolor:* by Alexander Seton, Esq., of Mounie.—Mr. Seton says that not having been able to discover any definite or permanent distinction between the plants which had been termed *Viola lutea* and *tricolor*, his attention was directed to their comparative appearance and habits in native situations; and having found all gradations of form, colour and habit between the extreme characters of the perennial plant called *lutea* and the annual called *tricolor*, he had come to the conclusion that they are originally from the same stock or species. As to the form of the stipules, and the different degrees of ramification or divarication in the stem, which Smith, Hooker, and other writers have adopted as distinguishing marks, they are so varying as to be totally unsuitable for that purpose. On the other hand, the *Viola* which has been by some termed *V. arvensis*, but has for the most part been considered as a variety of *V. tricolor*, is so different, and so constant in its general character, that he is inclined to consider it a separate species, though in most particulars extremely similar. It is completely annual, and he has never found it with that multiplicity of stems arising from a spreading root and radiating at their base, which are usual with the two others when they have remained for any length of time undisturbed. It is also taller and more succulent in the herbage than *V. tricolor*, even when the latter is in a rich and congenial soil; and it maintains its characteristics when propagated by the seeds, without those gradations of variety which obliterate distinctions of species: for, having observed it growing in corn-fields and by waysides, along with *V. tricolor*, not only in this kingdom, but also in France, Italy and Germany (in all of which countries both species are common), he uniformly found it retaining its own peculiarities, unblended with those of its congener.—But, though the habits and general appearance of the plants are considerably different, yet their various parts are so much alike that he is unable to find any other descriptive distinction than the proportion between the calyx and corolla. Mr. Seton also notices some remarkable variations in form and habit, obviously arising from soil or locality, in several other plants, such as *Trifolium pratense*, *Plantago lanceolata*, &c.

5. *Notice respecting some late additions to the Flora of Jersey:* by Mr. Joseph Dickson, Corresponding

Secretary.—The chief interest of this paper consisted, as in the case of No. 2, in the contrast afforded with the vegetation of other parts of Britain; and the author promised to take an early opportunity of extending his observations on this subject.—*Edinburgh Evening Post and Scottish Standard*; January 19, 1842.

Thursday, February 10, 1842.—Professor Graham in the Chair. The following papers were read.

1. *Notices of several Vegetable Monstrosities, with Specimens*: transmitted by Mr. H. C. Watson, and others.—Some of these monstrosities were very interesting, particularly a *Geranium* (*pusillum*?) having the branches terminated by heads or umbels of flowers, through adhesions and excess of parts,—the petals being mostly green or obsolete and the stamens imperfect; *Anthriscus sylvestris* with the umbels proliferous, which was gathered in the wet autumn of 1839; *Linaria repens*—varieties growing together, and showing a gradual approach to *L. vulgaris*; *Anemone nemorosa*, having the pistils changed to leaves; and *Galium Aparine*, presenting a remarkable *lusus naturæ*, probably caused by insects, the quadrangular stem being twisted, so that the stellate leaves have become secund.

2. Mr. Goodsir described the *Sarcinula Ventriculi*, a new vegetable infusorial allied to the genus *Gonium*, which he had found existing in immense numbers in the fluid ejected, for many weeks, from the stomach of a patient labouring under a particular form of indigestion. This fluid was ejected in large quantities at a time, and had an appearance similar to that of liquor in a state of fermentation. The plant is microscopic—of a square form, and having the parts arranged in a beautifully symmetrical manner in the square. The number of cells of which the plant consists is 64; it propagates by the division of each of these 64 cells into 4 new ones, so as to consist of 256 cells—and simultaneously with this increase in the number of parts, divides spontaneously into four young plants.

The author then adverted to the extremely rapid increase of the plant by such a mode of propagation; and after some observations on the nature of the disease in which it occurred, and of which it probably constituted the cause, he concluded with remarks on the genera of plants and animals to which the new plant is allied.

3. *On Primula veris and allied species*: by the Rev. J. E. Leefe.—Mr. Leefe, after remarking that *Primula inflata*, Lehm, approaches very near to *P. veris*, says—"in the woods at Audley End, Essex, I find a good deal of what is commonly known as *P. elatior* intermixed, but sparingly, with primroses and cowslips. It agrees with the character of *P. elatior*, Jacq., as defined by Koch, but not with the figure in 'English Botany.' The calyx-teeth are more ovate at the base, and the leaves are those of a cowslip—indeed the teeth are almost precisely the same in form as those of the *P. inflata* before alluded to. The limb of the corolla is, however, equal in breadth to more than half of the tube, and is flat, or nearly so."

Professor Henslow writes on this subject:—"With respect to the identity of the three common *Primulæ*, I consider that no argument can be derived from their keeping distinct, in nature or under culture. It is purely a physiological question, whether all of them may not originate from the seeds of any one—a question which can only be decided by direct experiment. Let a cowslip be highly manured, and its seeds sown in a shady, moist aspect, and I suspect the chances are in favour of some of them coming up as primroses, or, at least, as oxlips. I have had several independent testimonies to the fact of cowslip roots changing to primroses; and until proof, by direct experiment, contradict the experiments of Mr. Herbert and myself, I cannot help believing that the three species (as they are thought) and the polyanthus, are merely races of one species."

4. *On certain Fungi found near Audley End, Essex, &c.*: by the Rev. J. E. Leefe.

5. *Notice of additions to the Flora of Aberdeen*: by Mr. George Dickie, Lecturer on Botany, King's College, Aberdeen.

6. *On the varieties of Dryas octopetala*: by Mr. C. C. Babington, M.A., F.L.S., F.G.S., &c. The characters distinguishing these are the proportional length and form of the sepals—the form of the base of the calyx—the form of the leaves—and the pubescence of the petioles. Two of these varieties are apparently confined to Ireland, where Mr. Mackay first noticed the differences existing among plants of this species—and the third is commonly found in alpine situations in England, Scotland, and on the continent of Europe. The latter being the best known form, may be considered as the type of the species, and in it the sepals are acute, and three or four times as long as broad—the base of the calyx being hemispherical; in β the calyx is very nearly the same, being only less acute; but in γ the sepals are scarcely twice as long as broad and very blunt, and the base of the calyx is truncated in a very remarkable manner.—*Id.* February 16, 1842.

Thursday, March 10, 1842.—Professor Christison in the Chair. The following papers were read.

1. *On four new species of British Jungermanniæ*: by Dr. Taylor, Dunkerron. Communicated by Mr. Wm. Gourlie, jun., Glasgow.—Mr. Gourlie read the descriptions of the species, and illustrated them by beautifully preserved specimens. Some of these were so minute as to require microscopic aid for their examination,—a circumstance which enhances the merit of their discovery by Mr. Wilson and Dr. Taylor, who have laboured with so much zeal and success in the field of Cryptogamic Botany. The following were the species described:—*Jungermannia Wilsoni*, Taylor, discovered by William Wilson, Esq., at Cromaglow, Killarney, in November, 1839, and named in compliment to him by Dr. Taylor. *J. stellulifera*, Taylor, also discovered by Mr. Wilson, who found it near Crich, in Derbyshire, in September, 1833. *J. voluta*, Taylor, and *spicata*, Taylor, both discovered near Killarney, in 1841, by Dr. Taylor.

Mr. Gourlie afterwards exhibited specimens of the following plants:—*Leskea pulvinata*, Wahl., discovered near York, by Mr. R. Spruce. *Anictangium Hornschuchianum*, discovered at Cromaglow by Dr.

Taylor; both new to the British Flora. *Jungermannia Balfouriana*, Taylor MSS., a new and highly curious species, brought from New Zealand by Dr. Stanger, and named by Dr. Taylor in compliment to Professor Balfour of Glasgow, from whose herbarium the specimens were communicated.

2. *Notice of the discovery of Herniaria glabra in Berwickshire, by Mr. William Marshall; and of Linnaea borealis in the same county, by Dr. Johnston:* communicated by Dr. Greville. The former of these species has generally been regarded as a native of the south of England, but there seems no reason to doubt its being indigenous in the above station. It was observed that Mr. Gorrie had found the plant abundantly in Perthshire, where he had no doubt it must have escaped from gardens, though now quite naturalized, and almost a weed in some places. The discovery of a new station for the lowly but beautiful plant named in honour of Linnæus, is always a matter of interest, and especially in the south of Scotland, where it occurs very rarely.

3. *On four new species of Desmidiæ:* by Mr. J. Ralfs. — Mr. Ralfs observes that "this natural genus is not well defined either in Agardh's 'Conspectus Criticus Diatomacearum,' or in any of our British works. Its best distinctive character seems to consist in the crenated appearance of its filaments, which is least evident in *D. mucosum*. These filaments, which are generally twisted in a regular manner, are of a pale green colour, simple, fragile, short and straight. The species are found during a great part of the year in clear shallow pools, or in old peat bogs,—the filaments being scattered in loose bundles in the water, or forming a thin gelatinous fleece at the bottom of the pool." The species ascertained by Mr. Ralfs are named by him *D. cylindricum*, *mucosum*, *Swartzii* and *Borreri*.

4. *Illustrative Drawings of Australian Plants:* by the Misses M'Leod of Sydney. These drawings, which are extremely well executed, were transmitted to this country by the ingenious ladies, in order to have the species ascertained which had most struck their fancy in that land of remarkable productions.

5. *Notice on the adhesion of Lepas or Barnacle to Fuci &c.* by Mr. Edmonston; with a specimen communicated by Mr. Archibald Gibson, Accountant. — Some observations were made by Mr. Edmonston and others with regard to this parasite, which at one time was popularly regarded as the veritable origin of the barnacle goose.

6. Mr. Edmonston read a letter from Mr. P. J. Brown, of Thun, respecting the three species of primroses usually considered to exist in this country. He says—"Against Sir James Smith's opinion (in Rees's Cyclopædia), that *Primula elatior* may be a mule between *veris* and *vulgaris*, I may observe that the three are not often the inhabitants of the same district,—*veris* is almost universally diffused; but where *vulgaris* is very abundant, I have rarely seen *elatior* in any quantity, and by far the most frequently not at all; while in general, as is the case at Thun, *elatior* grows by thousands in places within many leagues of which *vulgaris* is absolutely unknown. *P. vulgaris* contents itself with an elevation but little above the level of the sea, although in the neighbourhood of the Lake of Geneva it is in perfect condition at from 1200 to 1500 feet; but at Thun, with an elevation of 1900 feet, it languishes, whether planted in a thicket, on a bank, or in a garden; while *elatior*, being more aspiring, prefers an elevation of from 1500 to 2000 feet, and although willingly climbing beyond the latter, descends reluctantly below the former level.

Professor Balfour (of Glasgow) made observations on the distinctions among the genera of Ferns—*Anemia*, *Mohria*, *Coptophyllum*, *Trochopteris* and *Schizæa*, some of which had been recently established by Mr. Gardner. The Professor next alluded to the various theories which have been advanced to account for the origin of woody fibre, and more especially to that of Du Petit Thouars. He showed by sections of palms that the interlacing of the fibres in Endogenous plants was quite in conformity with Du Petit Thouars' theory, and that the appearance of the woody matter in tree ferns, and in the natural orders *Piperaceæ*, *Aristolochiaceæ*, and the formation of roots externally in screw pines, Vellorias, &c., all supported the theory of wood being formed by the development of fibres from buds acting as fixed embryos. Dr. Balfour also endeavoured to show that the formation of what have been called by Dutrochet *embryo buds*, may, in many cases, be accounted for by the development of leaves on them at one period of their growth; and that on examining some others which he exhibited, the woody matter might be traced communicating with the alburnum, at one point by rupture of the bark, and insinuating itself between the layers of bark.—*Id.* March 16, 1842.

BOTANICAL SOCIETY OF LONDON.

February 18. — Dr. Willshire in the Chair. The following donations were announced. Specimens of *Ulex calophylla*, found on the coping of a wall in Banbury Churchyard by Mr. Thomas Beesley, and presented by him: foreign plants from Mr. R. J. Shuttleworth, Professor Meisner, Mr. J. D. Salmon, and The Rev. Christian Munch: British plants from the Botanical Society of Edinburgh and Miss Moxon: British mosses from Mr. G. H. K. Thwaites: books from Mr. R. J. Shuttleworth and Mr. Thomas Beesley. A paper was read from Henry Oxley Stephens, Esq., being "Notes on *Epilobium angustifolium* and *Epilobium macrocarpum*." Since the publication of Mr. Leighton's papers on these plants in the 'Annals of Natural History,' Mr. Stephens had received a communication from Sir W. J. Hooker, in which he stated that the characters pointed out by Mr. Leighton and Mr. Stephens did not seem sufficient to constitute a species; and subsequently Mr. S. states that his *macrocarpum* is the *angustifolium* of Linnæus. Dr. Willshire offered some remarks "On *Adelia nereifolia*," and exhibited its structure by means of the microscope.—*G. E. D.*

THE PHYTOLOGIST.

No. XII.

MAY, MDCCCXLII.

PRICE 6D.

ART. LX. — *Localities of British Algæ in addition to those given in Harvey's Manual.* By JOHN RALFS, Esq.

Penzance, January 10, 1842.

SIR,

Several of my friends having expressed their regret that Mr. Harvey did not give a greater number of new habitats in the 'Manual of British Algæ,' though considering the short stay he made in England I was surprized to find so many as there are, I avail myself of the facility afforded by 'The Phytologist' to make the following addition to the number given in that work. I either possess, or have seen, specimens from all the habitats given.

My friend Mr. Dickie finds *Gelidium? rostratum* plentiful about Aberdeen, on the stems of *Laminaria digitata*.*

Yours very truly,

JOHN RALFS.

To the Editor of 'The Phytologist.'

I confine myself in the following List to the species mentioned in the Manual, or in the 'Supplement to English Botany.'

Cystoseira granulata. Small cove near Aberffraw, Anglesea.

Lichina confinis. Common on most rocky coasts, as Devon, Cornwall, Wales &c., generally within reach only of the spray.

Laminaria debilis. Salcombe; April.

—— *fascia*, (Eng. Bot. t. 2845). Salcombe; Mount's Bay, Cornwall, plentiful; April.

Dictyota atomaria. Tenby; Rev. T. Salwey. Bracelet Bay, Glamorganshire.

Dictyosiphon feniculaceus, (Eng. Bot. t. 2746). Abundant in the Menai Strait.

Striaria attenuata. By flood-gates of mill-pool opposite Devonport.

Asperococcus compressus, (Eng. Bot. t. 2846). Mount's Bay.

—— *pusillus*. Caernarvon.

Sphacelaria filicina. Mount's Bay, sparingly; between Holyhead and Holyhead Mountain.

—— *plumosa*. Beaumaris; thrown up on the shore at Barmouth.

—— *radicans*. Ilfracombe; Mount's Bay; Land's End.

—— *? velutina*. Torbay; Salcombe; Mount's Bay.

Ectocarpus fasciculatus. Mount's Bay, on stems of *Laminaria digitata*.

—— *Hincksia*. Torquay; Miss Griffiths. Breakwater, Plymouth; Rev. W.

S. Hore.

—— *crinitus*. Salcombe.

* See note by Mrs. Griffiths, page 203.

- Ectocarpus pusillus*. St. Michael's Mount, Cornwall.
- *sphaerophorus*. Mount's Bay; Sennen Cove, Land's End; Milford Haven; near the Menai Bridge.
- *Mertensii*. Mount's Bay, near Penzance.
- Helminthocladia virescens*. Common. Plymouth; Mount's Bay; Aberystwith; Caernarvon; Bangor, &c.
- Mesogloia multifida*, var. *subsimplex*. Land's End.
- *Hudsoni*. Aberffraw, Anglesea.
- *coccinea*. Salcombe.
- Gloiosiphonia capillaris*. Mount Edgecombe; Rev. W. S. Hore.
- Naccaria Wiggihii*. Salcombe.
- Nitophyllum punctatum*, β . *ocellatum*. Mount Edgecombe; Rev. W. S. Hore.
- *ulvoideum*. Scilly Islands; Miss M. White. Mount Edgecombe; Rev. W. S. Hore. Salcombe.
- *Gmelini*. Mount Edgecombe; Rev. W. S. Hore. Bracelet Bay, Glamorganshire, very abundant.
- Rhodomenia reniformis*. Witsand Bay, Land's End.
- Rhodomela scorpioides*. Plymouth, abundant.
- Bonnemaisonia asparagoides*. Scilly Islands; Miss M. White. Mount's Bay; Mr. Carnow.
- Chylocladia parvula*. Falmouth; Miss Warren. Mount's Bay.
- Gigartina Griffithsiae*. Mount's Bay.
- Chondrus norvegicus*. Mount's Bay.
- Grateloupia filicina*, (Eng. Bot. t. 2780). Lynmouth, Devonshire; Rev. W. S. Hore. Mount's Bay, plentiful.
- Ptilota plumosa*, a. *major*. Between Holyhead and Holyhead Mountain. Although this form is common in Scotland and the North of England, it becomes very scarce as we advance southward.
- Polysiphonia parasitica*. Mount's Bay; Land's End; Holyhead.
- *cristata*. Mount's Bay; Mr. Carnow. Land's End.
- *thuyoides*. Ilfracombe, plentiful; St. Michael's Mount. In Mr. Dillwyn's herbarium are specimens of this plant gathered thirty years ago.
- *spinulosa*. Falmouth Bay; Miss Warren.
- *violacea*. Plymouth; Mrs. Griffiths. Caernarvon.
- *pulvinata*. Salcombe; Mount's Bay; Land's End.
- *byssoides*. Shores of Wales, common.
- Dasya ocellata*. Mill-pool opposite Devonport; Rev. W. S. Hore. Mount's Bay.
- Spyridia filamentosa*. Cove near Aberffraw, plentiful; Holyhead.
- Griffithsia equisetifolia*. Coast of North Wales, common.
- *corallina*. Caernarvon.
- Callithamnion Hookeri*. Salcombe; Mount's Bay; Milford Haven.
- *roseum*. Falmouth; Miss Warren. Salcombe; Teignmouth; Milford; Menai Strait; Barmouth.
- *byssoides*. Falmouth; Miss Warren. Mount's Bay; Milford Haven; Caernarvon.
- *polyspermum*. Teignmouth; Salcombe; Plymouth; Mount's Bay; Milford; Bangor; Caernarvon, &c.
- *Borreri*, β . *seminulum*. Land's End.

Callithamnion gracillimum. Milford Haven.

———— *thuyoides*. Ilfracombe ; Bracelet Bay, near Swansea.

———— *spongiosum*. Cawsand Bay, near Plymouth ; Land's End ; Holyhead.

———— *pedicellatum*. Salcombe ; Mount's Bay ; Milford Haven.

———— *barbatum*. Plymouth.

———— *Pluma*. Torbay.

Chætophora pellita. Land's End ; Mount's Bay.

Conferva pellucida and *diffusa*. Aberffraw and Holyhead abundant.

———— *refracta* and *glaucescens*. Mount's Bay.

Mougeotia cærulescens. In several places about Penzance.

Codium adhærens, (perennial). Sennen cove, Land's End.

Bryopsis hypnoides, (Eng. Bot. t. 2781). Ilfracombe.

Vaucheria velutina. Near Holyhead.

———— *clavata*. Pilton, Devonshire ; Mrs. Griffiths. Specimens much taller and more diffuse than the figure in the 'Gleanings,' but Mr. Berkeley considers that it belongs to this species.

Rivularia plicata. Salcombe ; Ilfracombe ; Barmouth.

———— *nitida*. Cawsand Bay, near Plymouth ; Mount's Bay.

Scytonema turfæa, (Berkeley in Eng. Bot. t. 2826). Sussex, Mr. Borrer.

Calothrix interrupta. Machynlleth, North Wales.

Lyngbya majuscula. Ilfracombe ; Plymouth ; Mount's Bay ; Anglesea, near the Menai Bridge.

———— *ferruginea*. Sussex ; Mr. Borrer. Near Holyhead.

———— *Carmichaelii*. Mount's Bay.

———— *speciosa*. Mount's Bay.

Oscillatoria Friesii. Many places in North Wales.

———— *cyaneæ*. Towednack Church, near St. Ives ; the Rev. H. Penneck.

Ulva calophylla. Oswestry, Shropshire ; Rev. T. Salwey. Aberdeen ; Mr. Dickie. Llanberris ; Capel Cerrig and Dolgelly, North Wales.

Bangia Laminariæ. Scilly Islands ; Miss M. White. Mount's Bay.

Palmella Ralfsii. Cwm Bychan, Snowdon, Glyder &c., North Wales.

Hydrurus Ducluzelii. River Ogwen near Bangor. I am not certain about the species ; I had no microscope with me, and neglected to preserve specimens : it was not half the size of the Devonshire plant.

Nostoc sphaericum. Llyn Coron, Anglesea, near Caernarvon.

Anabaina Jacobi, (*Sphærozyga Jacobi*, Berk. in Eng. Bot. t. 2826, fig. 2). Northamptonshire ; Rev. M. J. Berkeley. Swansea ? not certain about the species.

Eutomia rotata. Penzance ; Swansea ; many places in North Wales.

———— *oblonga*. Penzance ; Caernarvon.

Chroolepus Arnottii. On the root of a yew, Penn's Rocks, Tonbridge Wells ; Mr. Borrer.

Melosira varians. Sussex ; Mr. Borrer, who is of opinion that it is not uncommon. Penzance ; Tavistock ; Dolgelly.

Desmidium Swartzii. Penzance ; Swansea ; Dolgelly ; Caernarvon.

Fragilaria aurea. Mount's Bay.

———— *diatomoides*. St. Michael's Mount ; Land's End.

———— *hyemalis*, Lyngb. Tavistock, Devonshire ; and Dolgelly, North Wales ; near Barmouth ; Rev. T. Salwey.

- Achnanthes longipes*. Shoreham Harbour, Sussex; Mr. Borrer. Ilfracombe.
 ——— *exilis*, Kutz. Oswestry, Shropshire; Rev. T. Salwey. Cader Idris, North Wales; and near Penzance.
Isthmia obliquata. Ilfracombe
Diatoma tenue. Henfield and Lewes, Sussex; Mr. Borrer.
Exilaria fulgens. Ilfracombe.
Meridion circulare. Sussex; Mr. Borrer. Aberdeen; Mr. Dickie. Oswestry; Rev. T. Salwey. Dolgelly.
Licmophora splendida. Salcombe, abundant on *Griffithsia corallina*.
 ——— *flabellata*. Mount's Bay; Land's End.
Gomphonema Berkeleyi. Northamptonshire, not uncommon; the Rev. M. J. Berkeley. Henfield, Sussex; Mr. Borrer. Shrewsbury; Mr. Leighton.
Berkeleya fragilis. Southampton; Miss Hill.
Schizonema obtusum and *ramosissimum*. Milford Haven.
 ——— *helminthosum*. Mount's Bay and Teignmouth.
 ——— *virescens*. Mount's Bay.
 ——— *implicatum*. Teignmouth.
 ——— *comoides* and *Grevillii*. Ilfracombe and Milford Haven.

Figures in 'English Botany' not quoted in the Manual.

Vaucheria cæspitosa, t. 2841.

Bulbochæte setigera, t. 2086.

Ulva Linza, t. 2755.

—— *crispa*, t. 2754.

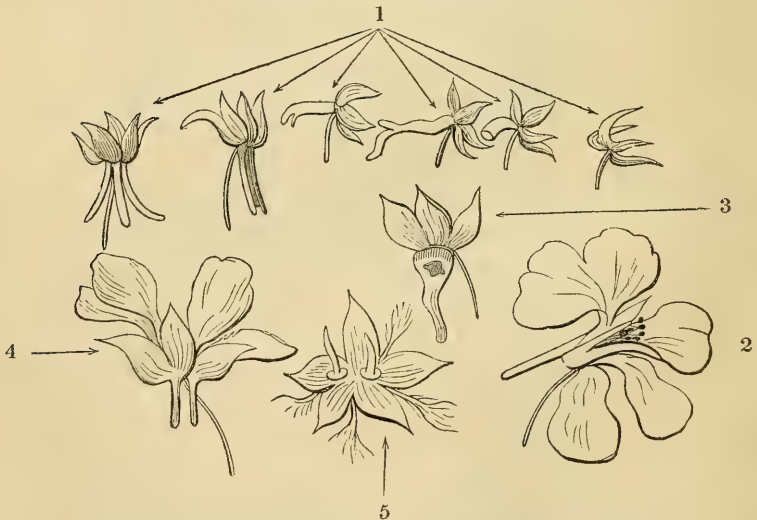
Enteromorpha intestinalis, t. 2756.

Polysiphonia cristata, (*Fucus cristatus*),
 t. 1925.

Achnanthes brevipes, t. 2842, fig. 1.

Odontella aurata, t. 2842, fig. 2.

ART. LXI. — Varieties.



130. Note on Irregularities in the Flowers of *Tropæolum atro-sanguineum*. As the

observation of the irregularities in plants is not only interesting in itself, but has also proved useful in establishing the laws which regulate their growth, I beg leave to forward to you the accompanying sketch of some which I observed in the autumn of 1836, on a bed of *Tropæolum atro-sanguineum*. No. 1 represents a series of the calyx and spur, showing a gradual change from an almost complete absence of the spur to the development of three. In another instance where the spur was absent, its place was supplied by an additional sepal. In No. 2 the spur was fully developed, and another spur was formed, which was inverted, and its point appeared among the stamens: in the figure the petals are turned back to show its position. No. 3 is the external appearance of the spur, showing the place where the second spur is inverted. The same irregularity I have frequently observed since that time; and in 1837 I found an instance (No. 4), in which two spurs were developed and both inverted, presenting the appearance in the inside of the flower represented in No. 5. On each of the points I found a small drop of honey.—*Anna Carpenter*; 2, *Great George St., Bristol*, January 18, 1842.

131. *List of Mosses &c. collected in Wharfedale, Yorkshire.* The plants mentioned in the following list were collected in Wharfedale, Yorkshire, on the 18th and 20th of December, 1841; they were all found within a space of a little more than three miles along the banks of the Wharfe, extending from Bolton Abbey to Barden Tower, where the mill-stone grit is the prevailing geological formation. When I state that the season was one of extreme severity; that I had in most instances to clear away the rime before I could ascertain what I was collecting; and lastly, to cut up the frozen masses with my knife;—I think the collection will be considered an interesting one. I have to acknowledge my obligation to Dr. Taylor for clearing up my doubts with regard to a few of the species.

<i>Musci.</i>	<i>Hypnum populeum</i>	<i>Jungermannia lævigata</i>
<i>Gymnostomum viridissimum</i>	plumosum	tomentella
<i>Tetraphis pellucida</i>	brevirostre	serpyllifolia
<i>Weissia fugax, Hedw.</i>		minutissima
<i>Grimmia rivularis, Bridel.</i>	<i>Hepaticæ.</i>	<i>Tamarisci</i>
<i>Didymodon rigidulus</i>	<i>Jungermannia asplenioi-</i>	<i>furcata, B. elongata</i>
capillaceus	des; a variety with	
<i>Trichostomum lanuginosum</i>	entire leaves	<i>Lichenes.</i>
<i>Dicranum flavescens</i>	pumila	<i>Bœomyces roseus</i>
<i>Cinclidotus fontinalioides</i>	sphærocarpa	<i>Endocarpon miniatum</i>
<i>Bryum gracile, Wils.*</i>	ventricosa	<i>Parmelia herbacea</i>
marginatum	connivens	<i>Sticta pulmonaria</i>
<i>Bartramia gracilis</i>	nemorosa, γ . recurvifo-	<i>Collema lacerum</i>
<i>Neckera pumila</i>	scalaris [lia	<i>ceranoides, Borr. in E.</i>
crispa	barbata, β . minor	<i>Bot. Supp.</i>
<i>Anomodon curtipendulum</i>	trichophylla	<i>Solorina saccata</i>
viticulosum	platyphylla, 2 or 3 vars.	<i>Sphærophoron compressum</i>

—*Richard Spruce*; *Collegiate School, York*, March 4, 1842.

132. *Note on Didymodon flexicaulis.* I may add that I observed *Didymodon flexicaulis*, *Scleich.*, in considerable quantity near Skipton; it appears to be common in

Yorkshire, as I have gathered it on the magnesian limestone near Tadcaster, and Mr. Ibbotson finds it at Castle-Howard. Dr. Greville, too, informs me that he noticed it last autumn in various parts of Craven.—*Id.*

133. *Mosses near Castle-Howard.* After my visit to Wharfedale, I passed a short time in the neighbourhood of Castle-Howard; but the continuance of the storm prevented me from botanizing to any extent. I had, however, the pleasure of discovering, in company with Mr. Ibbotson, *Hypnum Blandovii* and *Bryum affine*,* in the same bog where he had a short time previously gathered *Leskea dendroides* (in fruit) and *Hypnum nitens*. Pursuant to a suggestion from Mr. Wilson, we intended to search further in the same locality for *Bryum squarrosum*, which Mr. W. discovered in Cheshire accompanying the plants above named, but were disappointed by the setting in anew of the frost and snow. A letter however from Mr. Ibbotson, dated 28th February, contains the interesting intelligence that he has found *Hypnum nitens* and *Bryum affine* coming copiously into fruit; and, more than all, the wished-for *Bryum squarrosum* in equal abundance! To use his own words,—"there is a space of not less than an acre, on which this and *Hypnum nitens* are the chief plants."—*Id.*

134. *Trifolium incarnatum.* Although *Trifolium incarnatum* has been introduced into some of our later botanical catalogues as an indigenous production, it does not appear to be often met with. Mr. Peete, and another experienced botanist whom I have consulted, have never seen it, except as a cultivated plant, in the fields. It may not, therefore, be uninteresting to mention, that I met with a very fine cluster of it, in full bloom, about the beginning of last June, on a piece of waste land at Norwood, in Surrey, quite away from any fields where the plant was likely to have been sown for agricultural purposes. I have no doubt at all of the identity of the flower. In Martyn's 'Flora Rustica' *Trifolium incarnatum* is said to vary in the colour of the spike, from bright to very pale red; the colour of my specimens was a very beautiful bright red. If it should be practicable to visit the same spot this year, at the proper time, I shall see whether the plant has maintained its position there. I do not doubt at all that it would be most proper to consider the plant which I found as an accidental occupant of the soil; but, when we find that this elegant species of *Trifolium* has been seen in such sterile spots as the Lizard Point in Cornwall, by the Rev. Mr. Hore; on the sands, in two separate places in Jersey, by Mr. Babington; and again, on the gravelly soil of Norwood;—we may yet hope to meet with its bright silky flowers in sufficient abundance materially to enhance the charms of our English Flora.—*William Ilott; Bromley, Kent, March 7, 1842.*

135. *New localities for Carex elongata.* Will you allow me, through the medium of your valuable and excellent little journal 'The Phytologist,' (for the institution of which the botanical world owes you a lasting debt of gratitude), to make known to you and your readers the discovery of no less than *five* additional habitats for one of the most rare and beautiful of our British Carices;—I allude to *Carex elongata*, *Lin.* This species, as you are well aware, for many years had only *one* authentic station in this country, first recorded by the late Mr. Jonathan Salt, who found it on the banks of the Don, near Sheffield. It was afterwards gathered at Colemere, in Shropshire, by the lamented J. E. Bowman, Esq., of this place, who obligingly furnished me with a specimen from that locality. My friend Mr. Wilson, of Warrington, also discovered

* Frequent near York, in moist situations.

it many years ago at Over, where, he writes me word, it still exists in small quantity. Lastly, it is recorded in the Yorkshire Flora, as being found in the neighbourhood of Boroughbridge. One of the five new localities is at a place near Town-lane Bridge, which crosses the Worsley Canal near Tildsley, about nine miles from Manchester: the plant here grows in an alder-swamp in great abundance, and was first discovered several years since by Mr. John Martin, a humble but ardent investigator of the arcanæ of Nature, who resides near the spot; by him it was sent to Mr. Wilson, who determined its identity. The second locality was discovered by my friend Mr. Buxton, on the 24th of last May, about four miles from Manchester, near the village of Chorlton, where it exists in profusion, encircling and growing in three large ponds, or, as they are technically termed here, "*pits*:" and this habitat, I may remark *en passant*, is one that is not likely to be destroyed by the ruthless and unsparing hand of *improvement*, either real or imaginary. Mr. B. also found it a few days prior to this, in considerable plenty, on the swampy banks of Rostherne Mere, Cheshire, a large and beautiful inland lake, and a locality rich in botanical productions, particularly in the genus *Carex*. The fourth locality is one that was pointed out to me when on a visit to Warrington last summer, by Mr. Wilson, who had long been aware of its existence there: the "*pit*" is in a field near to Bruch Farm, about a mile and a half from Warrington, on the road to Manchester, and here, likewise, it is in great abundance. During our rambles together on the same day, we again met with this delightful plant in very great quantities, completely lining the sides of the ditch for a very considerable distance; this was previously entirely unknown to Mr. Wilson, and you may be assured our delight was commensurate with the value of the discovery. The name of the lane I do not at this moment remember, but it is in the immediate vicinity of Warrington, and would be most readily pointed out to any one happening to visit that neighbourhood, and who might be desirous of gathering it, by Mr. Wilson, whose courtesy and urbanity to all who are ambitious of increasing their knowledge in natural science, is such as to merit the highest meed of praise.—*J. B. Wood, M.D.; Broughton, near Manchester, March 9, 1842.*

136. *New locality for Carex axillaris.* It also affords me much pleasure to add another to the localities already known for the equally rare *Carex axillaris*. This was also found by my indefatigable friend Buxton, in company with Mr. J. Martin, on the 30th of last May (1841), about one mile west of Leigh, in Westleigh, and about ten miles from Manchester: the plant was growing sparingly from the hedge-bank, and much cropped by cattle. In connexion with this species, perhaps you will permit me to observe, that during a short stay in York last summer, on my return from a very prosperous botanical visit to Teesdale, I had the pleasure of calling upon Mr. Baines, the author of the excellent '*Flora of Yorkshire*;' and in looking over his duplicates, I met with a single specimen of *Carex axillaris*, which is now in my herbarium. It was not then known to him, but *he assured me most confidently that he had gathered it himself* in Heslington fields, near York, shortly before, and that, as far as his recollection served him, it was in considerable quantity. I hope, however, that either Mr. Baines, or some other resident botanist, will elucidate this fact clearly and satisfactorily, and favour us with the result of his investigation through the pages of '*The Phytologist*,' which are always open for the promulgation of truth and the advancement of botanical science.—*Id.*

137. *List of Mosses &c. collected chiefly at Leith Hill, Surrey.* I returned this morning from a two days' excursion in Surrey, whither I had accompanied my friend

Mr. Ward, in quest of fresh air, exercise, scenery and health, and at the same time to renew my acquaintance with whatever mosses and Hepaticæ might fall in my way. As many of your readers may not be aware how large a portion of the plants composing these two most interesting orders may be discovered so near London, and in so short a time as that which we devoted to searching for them; I subjoin a list of all that we found, marking those which grew on Leith Hill or its neighbourhood with the letter L; those at Box Hill, Headley, or Walton, with the letter B. To these places only, I should say, did our ramble extend. The species not in fruit are marked 0.

<i>Phascum subulatum</i> , L. B.	<i>Orthotrichum affine</i> , B. β . L.	<i>Hypnum proliferum</i> , L. B. 0
muticum, L.	striatum, L.	prælongum, L.
cuspidatum, B.	crispum, L.	rutabulum, L.
<i>Sphagnum acutifolium</i> , L. 0	<i>Bryum palustre</i> , L. 0.	velutinum, L.
obtusifolium, L. 0	argenteum, L. 0	ruscifolium, L.
<i>Gymnostomum truncatulum</i> , var. β . B.	capillare, B.	striatum, L.
	cæspitium, L. B.	confertum, L. B.
<i>Weissia controversa</i> , L.	nutans, L.	cuspidatum, L. B. 0.
<i>Didymodon purpureus</i> , L. B	ligulatum, B. 0.	stellatum, β . B. 0.
rigidulus, L.	punctatum, L.	loreum, L. 0.
<i>Trichostomum canescens</i> , B. 0.	hornum, L.	triquetrum, L. 0.
	cuspidatum, L.	squarrosus, L. 0.
<i>Dicranum bryoides</i> , β . L.	<i>Bartramia pomiformis</i> , L.	cupressiforme, L. B.
adiantoides, L.	fontana, L. 0.	and var. γ . B.
taxifolium, L.	<i>Leucodon sciuroides</i> , L. 0.	molluscum, B. 0.
undulatum, L. 0.	<i>Neckera pumila</i> , L.	<i>Lunularia vulgaris</i> , with
scoparium, L.	<i>Daltonia heteromalla</i> , B.	gemmae, L.
varium, B.	<i>Hypnum trichomanoides</i> , L.	<i>Jungermannia epiphylla</i> , L.
heteromallum, L. B.	complanatum, L.	β . longifolia, L. 0.
<i>Tortula rigida</i> , L.	undulatum, L. 0.	endiviæfolia, L. 0.
muralis, & var. β . L. B.	denticulatum, L. 0.	furcata, L. 0.
ruralis, L. B.	tenellum, L.	asplenioides, L. 0.
subulata, L.	serpens, L.	emarginata, L. 0.
unguiculata, L. B.	purum, B.	bicuspidata, L. B.
fallax, L. [B.	piliferum, L. 0.	undulata, L. 0.
<i>Polytrichum undulatum</i> , L.	Schreberi, L. 0.	albicans, L.
piliferum, B.	sericeum, L.	complanata, L. 0.
juniperinum, L.	alopecurum, L. 0.	scalaris, L.
commune, L.	curvatum, L.	bidentata, L.
urnigerum, B. 0.	mysurioides, L. B.	reptans, L. 0.
aloides, L. B.	splendens, L.	

I am not sufficiently acquainted with the Botany of the neighbourhood of London to know whether any of the above are of rare occurrence; if they are, I shall be happy to give such directions to any of your correspondents as will enable them to procure specimens for themselves. In the course of our ramble we observed *Lycopodium clavatum*, in considerable abundance, near the summit of Leith Hill, and Mr. Joseph Ward met with a solitary specimen of *Lyc. Selago*. — *C. A. Johns*; 11, *Manchester Buildings, Westminster, March 19, 1842.*

138. *New Habitat for Bryum Tozeri and Hypnum catenulatum.* In the course of a ramble with Mr. Ward from Greenhithe to Swanscombe, on Saturday last, April 9,

I had the good fortune to discover the *Hypnum catenulatum* of Schwægrichen growing on a hedge near Betsham. It differs (as you will see by the enclosed specimen) from the plant bearing the same name described by Hooker, in being furnished with a nerve which disappears above the middle of the leaf, while in Hooker's plant the nerve is not more than one fourth the length of the leaf. *Bryum Tozeri*, which has not yet, I believe, been found east of Devonshire, grows very abundantly on the perpendicular side of a deep sand-pit in Swanscombe Park Wood. Its foliage is very luxuriant, but though it bears what appears to be male fructification freely, I could not discover any setæ.—*Id.* April 13, 1842.

139. *Note on Lolium multiflorum*, (Phytol. 136). The *Lolium* I now enclose is the one mentioned at p. 136 of 'The Phytologist.' This plant was found in great profusion near Manchester in June, 1840, by Messrs. Crozier and Eversfield of that town; they sent me this plant under the name of *Lolium perenne*, var., they also sent it to my friend Mr. Leyland, of Halifax. A short time afterwards Mr. Leyland was in a seed-shop in that town, where they told him they had a new grass imported under the name of "Italian ray-grass." It struck Mr. Leyland forcibly that this must be the same as the Manchester *Lolium*, he of course procured a few of the seeds and had them sown, and on flowering, the plants turned out to be what he expected. In June, 1841, in company with my friend Mr. Baines, of York, I visited the neighbourhood of Tadcaster, to collect *Monotropa Hypopitys*, a few of the *Carices*, &c. We met with a farmer in that part who took us a little out of our way to look at a new grass he told us they had just received seeds of; on our arriving at the place it was what I expected—the Italian ray-grass.—*Samuel Gibson; Hebden Bridge, December 13, 1841.*

140. *Note on the two forms of Monotropa*. As it is not perhaps generally known that we have two very different forms of *Monotropa* growing in England, the following account of them may be acceptable to some of the readers of 'The Phytologist.'

1. *Monotropa Hypopitys* of authors. In this form of the plant the edges of the outer petals (or what Gray calls the calyx) ciliated with strong hairs; inside of the inner (or true) petals densely covered with the same kind of hairs; stamens also hairy, hairs pointing forward. This form of the plant grows in shady woods, in soil composed of the decayed leaves of trees. I have specimens of the above form from the following localities:—East Kent, collected about 1836, sent to me by my friend E. H. Bulton, Esq.: Cotswold Hills, by Mr. Lees: Reigate, Surrey, by Mr. Luxford: and from Jackdaw Crag, near Tadcaster, Yorkshire, gathered in that locality by myself. I have also a specimen from the late E. Hobson, answering to the above characters, but the locality is unknown to me.

2. *Monotropa lavipetala*, mihi. In this, the more rare form of our *Monotropa*, the outer and inner petals are smooth in every part; the stamens also are quite smooth. This plant grows in sand, as at Southport, &c. I have a specimen of this form from the north-west end of Selborn Hanger, for which I am indebted to my friend Mr. Tatham; and have seen other specimens from the same locality, all of them answering to the above characters. I have also specimens gathered at Southport in 1840, by Linnaeus Aughton (said to be the original discoverer, Phytol. 149), and others gathered by a lady in 1836. Besides these I have a specimen gathered at Southport in August, 1789, by the late James Bolton, author of 'Filices Britannicæ.' This specimen was in the herbarium of the late Dr. Dinely; that herbarium was sold by auction about twenty-five years ago, and fell into my hands for the small sum of two shillings and sixpence; it contained a few rare plants, such as *Cardamine bellidifolia*, &c. Specimens of this plant [*Monotropa*] gathered fifty

years ago perfectly agreeing with specimens gathered at the present time, will, I think, be sufficient to show that the smoothness of the petals of the Southport *Monotropa* is not accidental; and as this plant is destitute of hairs on the petals and stamens, perhaps it is destitute of smell also.—*Samuel Gibson*; *March 15, 1842.*

141. *List of Algæ from Jersey.* The list of Guernsey Algæ by Dr. Greville, (Phytol. 172), induces me to send you a list of Jersey Algæ collected by Miss M. White, a zealous Algologist. Except a few of the commonest and largest species, I have seen and identified specimens of all of them.

<i>Cystoseira granulata</i>	<i>Naccaria Wiggii</i> , very sc.	<i>Ptilota plumosa</i>
<i>feniculacea</i>	<i>Dumontia filiformis</i>	<i>Polysiphonia fruticulosa</i>
<i>fibrosa</i>	<i>Halymenia ligulata</i> , rather	<i>thuyoides</i>
<i>Halidrys siliquosa</i>	common	<i>nigrescens</i>
<i>Fucus vesiculosus</i>	<i>Iridaea edulis</i>	<i>urceolata</i>
<i>serratus</i>	<i>Polyides rotundus</i>	<i>fastigiata</i>
<i>nodosus</i>	<i>Furcellaria fastigiata</i>	<i>fibrata</i>
<i>canaliculatus</i>	<i>Delesseria sanguinea</i>	<i>elongata</i>
<i>tuberculatus</i> , plentiful	<i>sinuosa</i>	<i>byssoides</i>
in two spots near St.	<i>alata</i>	<i>Dasya coccinea</i>
<i>Helier's</i>	<i>Hypoglossum</i>	<i>Ceramium rubrum</i>
<i>Himanthalia lorea</i>	<i>ruscifolia</i>	<i>ciliatum</i>
<i>Lichina pygmaea</i>	<i>Nitophyllum punctatum</i> , ra.	<i>Spyridia filamentosa</i> , not
<i>confinis</i>	<i>laceratum</i>	very common
<i>Laminaria digitata</i>	<i>lacerat. β. uncinatum</i>	<i>Griffithsia equisetifolia</i>
<i>bulbosa</i>	<i>Rhodomenia laciniata</i>	<i>multifida</i> , very com.
<i>saccharina</i>	<i>Palmetta</i>	<i>corallina</i> , not uncom.
<i>Desmarestia ligulata</i>	<i>ciliata</i>	<i>setacea</i>
<i>aculeata</i> [rare]	<i>jubata</i> , common	<i>Callithamnion Hookeri</i> , ra-
<i>Sporochnus pedunculatus</i> ,	<i>sobolifera</i> , common	ther scarce
<i>rhizodes</i>	<i>Plocamium coccineum</i>	<i>tetricum</i>
<i>Haliseris polypodioides</i> , not	<i>Rhodomela subfusca</i>	<i>Conferva rupestris</i>
common	<i>pinastroides</i> , plentiful	<i>ærea</i>
<i>Padina pavonia</i> , in two pla-	<i>Bonnemaisonia asparagoi-</i>	<i>implexa</i>
ces near St. Heliers.	des, rare	<i>Codium tomentosum</i>
<i>Dictyota dichotoma</i>	<i>Laurencia pinnatifida</i>	<i>Calothrix confervicola</i>
<i>Punctaria plantaginea</i> , not	<i>obtusa</i>	<i>Bangia fusco-purpurea</i>
very common	<i>tenuissima</i> , rare	<i>Lyngbya majuscula</i>
<i>Asperococcus Turneri</i>	<i>Chylocladia clavellosa</i> , not	<i>Carmichaelii</i>
<i>echinatus</i>	<i>ovalis</i> [com.	<i>Porphyra laciniata</i>
<i>Chorda lomentaria</i>	<i>kaliformis</i>	<i>vulgaris</i>
<i>Filum</i>	<i>Gigartina purpurascens</i>	<i>Ulva latissima</i>
<i>Cladostephus verticillatus</i>	<i>confervoides</i>	<i>Linza</i>
<i>spongiosus</i>	<i>Chondrus crispus</i>	<i>Enteromorpha compressa</i>
<i>Sphacelaria scoparia</i>	<i>membranifolius</i>	<i>Achnanthes longipes</i>
<i>cirrhosa</i>	<i>Sphærococcus coronopifoli-</i>	<i>Diatoma marinum</i>
<i>Ectocarpus littoralis</i>	us, sometimes abun-	<i>Exilaria fasciculata</i>
<i>Chordaria flagelliformis</i>	<i>Gelidium corneum</i> [dant	<i>Gomphonema paradoxum</i>

On a comparison of the two lists it will be found that more than thirty of the Jersey

species are not mentioned in Dr. Greville's, which however contains about twenty not included in the above list. — *John Ralfs ; Penzance, March 23, 1842.*

142. *Reappearance of Gelidium rostratum in Scotland.* Having seen in the notice of Harvey's 'Manual of British Algæ,' in 'The Phytologist' (Phytol. 124) that an observation is made on the long-disputed plant *Gelidium rostratum*, that it has not been found for thirty years; I think it will be interesting to your readers to learn that it has again made its appearance. By the kindness of Mr. Dickie of Aberdeen, I have received very fine specimens, gathered by him at intervals from December 1841 to March of the present year, the latter fresh, and with ripe fruit of both kinds, some of them eight inches long; Mr. D. had one measuring twelve. I have again examined these beautiful plants, and have requested a friend to submit them to higher powers of the microscope than I possess, and the result of both is a full confirmation of my former opinion, that it is decidedly a distinct species, differing in structure from *Delesseria alata*, and that its nearest generic affinity is *Gelidium*. Mr. Dickie informs me that some fragments were found two years since, and that he has received it lately from Montrose; and as Mr. Brodie originally discovered it at Lossiemouth, it has a considerable range of coast. Mr. Dickie also informs me that it is a deep-water plant — growing on the old stems of *Laminaria digitata*, together with *Delesseria alata* and *Pilota plumosa*, cast up after storms. — *Amelia W. Griffiths ; Torquay, April, 1842.*

143. *Note on Trichonema Columnæ.* In my paper on the Botany of Devon and Cornwall (Phytol. 160), I have stated that no plants of *Trichonema Columnæ* were found during the spring of last year on the Warren at Exmouth, the habitat referred to in the British Flora. I was induced to make this statement on the authority of a botanical friend well acquainted with the plant. From the nature of this interesting species I was induced to think that some ruthless collector had extirpated it from the Warren, as it did not appear to me probable that flowering bulbs could be in existence without disclosing their charms at the proper season. This, and to supply the wants of our Botanical Societies, led me, on Tuesday last, to visit Exmouth for the express purpose of seeking out the truth relative to it. Although rather early for it, I was gratified in finding it scattered over the waste of sand in several places, but not in abundance. It grew amongst the grass (that is, where the grass formed a kind of turf) at the western end of the Warren. *Cladonia rangiferina* is in abundance in its neighbourhood, and seems to confine it within certain limits, as I did not find a single specimen protruding from amongst this Lichen where it prevailed in large quantities. — *W. S. Hore ; Stoke, Devonport, April 7, 1842.*

144. *Narcissus poeticus.* I am informed by Miss A. Griffiths, that *Narcissus poeticus* has been found on the Warren by Mrs. Wyatt, the publisher of the beautiful volumes of Devonian Algæ. — *Id.*

145. *Note on Primula elatior.* During a recent excursion upon the continent, whilst botanizing near Spa, in Belgium, I found, growing under some nut-bushes upon the banks of one of the numerous mountain streams in the neighbourhood, three young plants of *Primula elatior* in flower. Throughout the whole of my walk I did not observe a single specimen of the other two species, — *P. vulgaris* and *veris*. The plants in question appeared to be about three years old. — *James Edward Moxon ; Leyton, Essex, April 13, 1842.*

146. *Bupleurum tenuissimum.* About the middle of last August in walking through some fields on the north of Highgate (I am unable to describe the place, as I was never there before or since), in one field I observed a quantity of *Polygonum Aviculare*

growing in a place where water had evidently stood, though then dry. Induced by its luxuriance I gathered a handful, but did not look at it until I had gone a considerable distance, when, on examination, I found I had another plant mixed with it, which proved to be *Bupleurum tenuissimum*, a specimen of which I enclose and beg your acceptance of.—*William Mitten*; 91, *Blackman St., Borough*, April 14, 1842.

[We beg our correspondent to accept our thanks for the very fine specimen he has so obligingly sent; it is larger than any we had previously seen. On turning to Milne and Gordon's 'Indigenous Botany,' we find it recorded that this species was found "by Merret, at *Paddington* beyond the bridge in the way to *Harrow upon the Hill*, whence it is now probably extirpated." The re-discovery of this plant in the neighbourhood of the metropolis, is a very interesting circumstance.—*Ed.*]

147. *Oxlips found at Bardfield, supposed to be identical with the Primula elatior of Linnæus.* I send you some oxlips from Bardfield, in Essex, which, from a notice in the *Gardener's Chronicle* of the 12th of March, appear to me to be identical with what the writer calls the true *Primula elatior* of Linnæus and the German botanists. They have nodding flowers, and in no instance have I seen single-flowered stalks, as in the primrose. They vary but little, and apparently owing to some having a more favourable situation than others. They cannot be hybrids, for the primrose does not exist in the parish, and these oxlips grow by thousands in the meadows, and in moist woody places adjoining: in one instance a meadow of about two acres is entirely covered by them, being a very mass of yellow bloom. Pagils or cowslips also occur in the neighbourhood, but prefer dry ground.—*Henry Doubleday*; *Epping*, April 20, 1842.

[The *Primula elatior* "*limbo corollarum plano*" of Linnæus, is the var. β . of his *P. veris*; var. *a. officinalis*, being our cowslip and var. γ . *acaulis*, the primrose; (*Sp. Pl.* 204, ed. 3). The passage in the *Gardeners' Chronicle* referred to by Mr. Doubleday, is given below.—*Ed.*]

148. *The Oxlip.* A notice in the *Gardeners' Chronicle* (Oct. 9, 1841),* upon the respective relations of an old and long-disputed family, the Primrose, Cowslip, and Oxlip, although correct in the main, requires a few observations to make the state of the case perfectly clear. It is probably true that the English *Primula elatior* or Oxlip (not that of Linnæus and the continental botanists) is a hybrid between the common Primrose (*P. acaulis*) and the Cowslip (*P. officinalis*). Two reasons may be adduced for this belief: 1st, That England is almost the only country in which the Primrose and Cowslip are found in company with each other; the former being on the continent rather a southern plant, ranging from France to Calabria and Asia Minor; the latter a northern one, ranging from Finland to the top of the Alps. Both species, may, indeed, be found in mountainous parts of the south of Europe; the *P. officinalis* on the higher parts of the Apennines, and the *P. acaulis* in the low warm grounds of Florence and Naples—but not together, nor does the English Oxlip seem to be known in those countries. The union of the Cowslip and Primrose in our banks and meadows is no bad type of the climate of England, in which the representatives of the northern and southern flora are found side by side, and what wonder if a hybrid be the result? In confirmation of this view of the true place of the English Oxlip, it must be familiar to every gatherer of wild flowers that Oxlips differ greatly from one another, as seedling varieties and their descendants often do. Some are more like

* No. 149, next page.

one parent, some like another, and perhaps their produce may be neither pure nor constant. Some Oxlips are scarcely anything else than larger-flowered Cowslips, and others appear to be merely caulescent, or rather scapescent Primroses. We look in vain for a specific character. But with regard to the German Oxlip, the true *P. elatior* of Linnæus and of the German botanists, and which is not yet known to be a native of England or of north-western Europe, the case is different. It is found in great abundance throughout Germany, south of the Neckar, and as far as the Italian side of the Alps, in the pastures of the Tyrol. It seems to be subject to no varieties, and is found not intermixed with other species, unless, perhaps, with some of the Alpine species in their peculiar localities. It has a peculiar cramp habit of leaf, a rough scape, nodding flowers, swelling calyx, and is scentless. In beauty it is inferior to either our Oxlip or Cowslip, or to *P. Columnæ* or *suaveolens* of Italy. It may rank, perhaps, with *P. Pallasii*. The English Oxlip is only known on the continent by its garden varieties, namely, the *Polyanthus* tribe. Perhaps the north and west of France, where the climate is the same as in England, should be excluded from these observations regarding the continent; as it is possible that Brittany and Normandy may possess both Primrose and Cowslip, and consequently the Oxlip. — *S. in Gard. Chron.* March 12, 1842.

149. *The Primrose, Cowslip and Oxlip.* In your report of the Proceedings of the Botanical Society of Edinburgh, p. 645, it is stated, in reference to the variable offspring of *Polyanthus*-seed, that "several members expressed their belief that the varieties arising from *Primula vulgaris* and *P. elatior* of British authors, may be correctly referred to one species; but that the *P. veris* is a distinct and well-marked species, never seen to amalgamate with, or pass into the others." Bearing on this point, one or two cases have come under my notice which seem to lead to a contrary conclusion. I once saw a number of seedlings from the Cowslip (*P. veris*), among which there was as great a diversity, both in form and colour, as is generally found in a bed of seedling *Polyanthuses*. Many retained the Cowslip form, but varied in colour from deep yellow, through all the gradations, to dark red; others, again, approached the *Polyanthus* in breadth of corolla. On the other hand, the Primrose (*P. vulgaris*) does not appear to vary much in form, but only in colour, when raised from seed. At Kiplin, in Yorkshire, the seat of the Earl of Tyrconnel, there are Primroses of more than a dozen distinct shades of colour, which must originally have sprung from seed; but although there are thousands of plants, I have no recollection of ever seeing one among them with more than a single flower on a stalk, or betraying any disposition to assume the cupped corolla of the Cowslip. Might not the Oxlip (*P. elatior*) be a hybrid between the Cowslip and the Primrose? The flowers of the common Primrose on the flower-stalk of the Cowslip, would be a near approach to the Oxlip. It is much less common (at least wherever I have been) than either the Cowslip or the Primrose, which seems to indicate that it is not reproduced freely by seed. — *J. B. Whiting.* — [This is also the opinion of some good botanists]. — *Gardeners' Chronicle*, October 9, 1841.

150. *The Polygonum maritimum* mentioned in my list (Phytol. 144), I find to be an error; it is not the true *P. maritimum*, but *P. Raii*, as figured in the Supplement of Sowerby's 'English Botany.' — *J. W. G. Gutch*; 38, *Foley Place*, February 2, 1842.

151. *Errata.* Phytol. p. 132, line 4 from bottom, for *F. Rupert* read *F. Russell*. P. 138, line 6, for *Harnton* read *Naunton*. P. 176 line 18 from bottom, for *E. H. Button* read *E. H. Bulton*. P. 178 line 7, for *W. Charlton* read *W. Chorlton*.

ART. LXII.—*Proceedings of Societies.*

LINNEAN SOCIETY.

March 1st.—Dr. Horsfield in the chair. A present of a collection of plants from Dr. Barratt of America, was announced; the collection consisted chiefly of Carices and Eupatoria. Read, a letter from W. Borrer, Esq., in which that gentleman offered to the Society his extensive and valuable collection of foreign Phenogamous plants; including European plants from Hooker, Woods, Mertens, and others; American plants from Drummond, Gardiner, &c.; plants of Arabia, Abyssinia, the Pyrenees &c. from the *Unio Itineraria*; and Lippold's plants of Madeira.

March 15.—Edward Forster, Esq. in the chair. A present of a collection of plants from the Tyrol was announced. Read, a paper by Dr. H. Faulkner, on *Edgworthia*, a new genus of plants from lower Afghanistan, belonging to the order Myrsinaceæ; a remarkable point in which is the protrusion of the style beyond the flower, even when in bud. The only species of the genus — *E. buxifolia*, is found associated with *Dodonea dioica*, an *Olea*, and an undescribed *Asclepiadeous* plant.

April 5th.—Robert Brown, Esq., in the chair. Specimens of *Crocus vernus*, gathered by Mr. Flower near Hornsea Church, were exhibited by him. The receipt of the herbarium of the late Professor Don, according to his bequest, was announced, as well as a collection of hard fruits and sections of woods.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, April 14th.—Professor Christison in the chair. The following communications were read.—

1. Professor Balfour of Glasgow made some remarks on the natural order *Lecythidaceæ*, and exhibited various specimens of the fruit of *Lecythis* and *Couratari*, from Brazil. Dr. Balfour also exhibited specimens of various fossil palms, which had been found embedded in sandstone collected at Stevenston, Ayrshire, by the Rev. David Landsborough. He likewise exhibited specimens of the snake-nut, brought by Dr. Campbell from Guiana; and communicated from Mr. W. Gourlie, Glasgow, a specimen of a large *Sphæria* attached to a West-Indian caterpillar, and which had commenced its growth during the life of the animal.

2. Dr. Balfour read extracts from a letter addressed to him by Mr. Edward Forbes, dated H.M.S. *Beacon*, Macri, Asia Minor, February 28th, 1842. Mr. Forbes's cruise round the islands of the Archipelago, although rich in results as regards marine Zoology and tertiary Geology, had been almost fruitless in Botany, in consequence of the season.

3. Dr. Balfour read his Report on the Progress and State of Botany in Britain, from February 1840 to January 1841; being a continuation of a paper on the same subject by Dr. Greville, printed in the Society's Transactions.

4. Dr. Balfour next read a communication from Mr. Ralfs, of Penzance, on the following species of *Algæ*.—1. *Homœocladia anglica*, concerning which there appears to be considerable confusion, some looking upon Mr. Ralfs's specimens as *Schizonema xylodes*, others as *Oscillatoria chthonoplastes*; and Harvey notices them under the name of *Microcoleus marinus*. Mr. Ralfs was satisfied of his plant being the true *Homœocladia anglica*, by comparing it with a specimen in the herbarium of Mr. Berkeley. 2. *Desmidiium compressum*, a new species of the genus, concerning which Mr. Berkeley remarks,—"I am quite delighted with your new *Desmidiium*; your observations are very correct. I see very distinctly the gland between each pair of segments; but as there are no separate joints in my specimen, I cannot quite ascertain its form.—It is certainly quite distinct from the other species, and a most interesting discovery." Specimens of both these *Algæ*, as well as of *Desmidiium Borreri*, were presented to the Society.—*Abridged from the Edinburgh Evening Post and Scottish Standard of Wednesday, April 20, 1842.*

BOTANICAL SOCIETY OF LONDON.

March 18.—John Edward Gray, Esq., F.R.S., &c., President, in the Chair. The following donations were announced:—Parts 1, 2 and 3 of '*Algæ Danmonienses*,' and Fasciculus 1 of Berkeley's *British Fungi*, presented by Mrs. Margaret Stovin. British plants from the Royal Horticultural Society of Cornwall, Messrs. Edwin Lees, J. Buckman and J. G. Mitchell. British Mosses from Hewett C. Watson, Esq., V.P. Books from the Leeds Philosophical Society and Mr. H. M. Holman. The following specimens were exhibited:—*Oxalis stricta*, collected near Penzance, presented by the Royal Horticultural Society of Cornwall. *Elacodendron Argan*, Retz, collected in the province of Haha, near Deabet, Barbary, in August, 1840, by Dr. W. Willshire, and presented by him. *Hypnum polymorphum*, Hedw., collected by Mr. William Gardiner, jun. on the sands of Barrie, Forfarshire, in June, 1841, and presented by him.

A paper was read from Edwin Lees, Esq., F.L.S., being "Remarks on the Flora of the Malvern Hills in the counties of Worcester, Hereford and Gloucester. Part 2:—The Hills and their immediate Roots." In geological language the Malvern Hills form an eruptive or igneous chain, stretching in a narrow ridge nearly due North and South for upwards of nine miles. Quartz, felspar, mica and hornblende are their mineralogical ingredients in numberless varied proportions; but it must be understood that the greater part of the

mass is in a disintegrated state, breaking up into angular fragments of every size, and thus forming debris on and materials for soil at the base of the slopes, while hard masses of granitic rock, weathering the atmospheric wear and tear of centuries, are of comparatively rare occurrence. This of course tends greatly to modify the capacity of these eminences as depositories of plants; and although rising up boldly in an insular manner in the midst of a flat district, and with no superior heights near at hand, their moderate altitude precludes the growth of any alpine plants; while their complete exposure to the blaze of summer even unfits them for subalpine species that grow in shady localities farther south. This may be instanced in *Saxifraga hypnoides*, which, though it grows in the moist recesses of the Cheddar Cliffs, Somersetshire, is entirely absent from every part of this rocky range. On the other hand, *Sedum album*, which no drought can destroy, finds an appropriate home in the exposed cliffs of the principal hills here, flowering when most other plants are completely withered and burnt up by the intolerable heat.

The Phanerogamous vegetation of the Malvern Hills is by no means so varied or remarkable as might at first have been anticipated from their geographical position. But in fact the breadth of the chain nowhere amounts to a mile, and for the most part does not exceed half a mile. There are scarcely any longitudinal valleys, as in only one place does the chain break distinctly into two parallel heights, and throughout a distance of above nine miles there are but five transverse ones. The average height of the chain above the level of the sea is about 1000 feet, the highest hills attaining respectively the altitude of 1300, 1350 and 1444 feet.—According to a very accurately taken barometrical observation by Mr. Addison of Great Malvern, the Worcestershire Beacon, which, as just stated, is 1444 feet in height by the Ordnance Survey, is only 923 feet above the library at Great Malvern, the slope at the base of the hills being thus shown to be full 500 feet above the level of the Severn. Such a moderate elevation can scarcely be expected to yield plants of an alpine kind, especially when the ravines, though not without rocks, possess none of a very precipitous character, and the streams that trickle down the hills, though abundantly musical, have but very little relation to the torrents that dash in thunder down the cliffs of stern and rugged mountainous regions. The late Mr. Purton (author of the Midland Flora) remarked that even in Wales he scarcely observed any lichens that were not to be found upon the Malvern Hills. In like manner the mosses are very luxuriant and abundant on the hills as well as in the woods around their bases, though the beautiful genus *Splachnum* seems to be altogether absent.—*Jungermannia* constitute a great proportion of the investiture of the hills, though the variety of species is not very remarkable, from the comparative scarcity of dripping rocks, yet in one shadowy ravine at least the beautiful *Jungermannia tomentella* is found. *Jung. resupinata* is rather abundant, and *Jung. ciliaris* is excessively common. The *Fungi* are pretty numerous, and, as might be expected, the *Agaric* tribe in particular is profusely scattered on the grassy declivities of the hills in the autumnal season. Many species of ferns are found in extreme profusion on the rocks as well as on every boggy declivity; and in the damp woods on either side the range, *Polypodium vulgare*, *Aspidium aculeatum* and *lobatum* and *Asplenium Filix-femina* are particularly abundant; while *Pteris aquilina* covers the sides of the hills in every part. Among the rarer species are *Allosorus crispus* and *Polypodium Dryopteris*, while *Asplenium viride* grows on an old bridge across the Teme, about eight miles north of Great Malvern, on the extreme verge of the district. *Aspidium Oreopteris* is rather plentiful wherever a boggy soil presents itself. *Grammitis Ceterach*, though occurring on old walls at Great Malvern, can scarcely be called a legitimate denizen, for not a stray individual occurs on any of the rocks.

The *Eriophori* are almost the only vascular plants that give anything like a subalpine aspect to the vegetation of Malvern, and even these now only occur in a few favoured spots. *Eriophorum polystachion* and *pubescens* give a pretty aspect to the bogs on the western side of the hills, to which at the present time they are limited; while *E. angustifolium* occupies marshy spots in the low country on the eastern side. The *Cyperaceæ* are pretty abundant in the numerous wet spots about the hills, though mostly of small size, and none very rare or peculiar. The following species have been gathered.—

Scirpus setaceus	Carex vulpina	Carex Pseudo-cyperus	Carex recurva
Blysmus compressus	teretiuscula	pallescens	cæspitosa
Eleocharis palustris	stellulata	flava	stricta
multicaulis	curta	Cæderi	acuta
pauciflora	ovalis	fulva	paludosa
Carex dioica	remota	binervis	riparia
pulcaris	axillaris	præcox	vesicaria
intermedia	pendula	pilulifera	ampullacea
muricata	sylvatica	panicea	hirta
divulsa.			

The most abundant grasses forming the turf of the hills are *Anthoxanthum odoratum*, *Cynosurus cristatus*, *Festuca ovina*, *Agrostis vulgaris*, *Avena flavescens*, *Aira flexuosa*, *præcox* and *caryophyllæa*: those of rarer occurrence are *Aira cristata*, *Triodia decumbens*, *Festuca Myurus*, *Glyceria rigida* and *Nardus stricta*.—The latter indeed is plentiful on the commons at the eastern base of the hills, with most of the commoner grasses. Mr. L. had seen *Avena fatua* in wheat-fields at the base of the hills almost as plentiful as the corn among which it grew. The former marshy state of the country at the eastern base of the hills is shown by the abundance, in spots not yet fully drained, of *Poa aquatica* and *fluitans*, *Phalaris arundinacea*, *Arundo Phrag*

tes, *Catabrosa aquatica* and *Calamagrostis Epigejos*; the latter of which forms a dense fringe to the hedges and ditches in marshy fields. The genus *Typha* is not very common in the district, although in one or two spots *T. angustifolia* rather prevails. On the rocks appear :—

Cotyledon Umbilicus	Sedum acre	Potentilla argentea	Trifolium striatum
Arenaria rubra	Telephium	Corydalis claviculata	Gnaphalium minimum
Sedum album	Potentilla verna	Ornithopus perpusillus	Solidago Virgaurea

On boggy ground.—

Veronica scutellata	Eriophorum polystachion	Hydrocotyle vulgaris	Spergula nodosa
Pinguicula vulgaris	Montia fontana	Helosciadium repens	Triglochin palustre
Blysmus compressus	Anagallis tenella	Drosera rotundifolia	

Besides the grasses and Carices before mentioned.

In the meadows and commons about the eastern part of the hills. —

Plantago Coronopus	Euphrasia officinalis	Cnicus acaulis	Habenaria viridis
Allium vineale	Marrubium vulgare	Anthemis nobilis	bifolia
Polygonum Bistorta	Mentha piperita	Orchis Morio	chlorantha
minus	Calamintha officinalis	Gymnadenia conopsea	Neottia spiralis
Ranunculus parviflorus			

In thickets at the foot of the hills and skirting their bases, wild roses are exceedingly abundant and beautiful, and Mr. Lees had collected the following.—

Rosa spinosissima	Rosa tomentosa	Rosa rubiginosa	Rosa Forsteri
villosa	inodora	canina	systyla
scabriuscula	micrantha	dumetorum	arvensis

The deep-coloured blossoms of *Rosa villosa* are very remarkable, and the pale ones of *R. scabriuscula* characteristic; *R. micrantha* and *systyla* are of frequent occurrence.

The *Rubi* are of equal if not superior luxuriance, in many remarkable forms, which are still under Mr. Lees' observation. It may be here sufficient to state that the glandulose forms are rather abundant: *Rubus carpinifolius* seems the most uncommon species.

In the woods oak (*Quercus Robus*) predominates above every other tree, and on the ridge-way in Eastnor Park is one about 150 years old, which is adorned with a fine coronal of mistletoe. *Q. sessiliflora* also presents itself, but assuredly much less in quantity than the former, though it boasts a white-leaved variety not mentioned by botanists, so far as Mr. Lees was aware of. A hamlet occupying the valley between the Ragged Stone and Keysand Hills (the two most southerly ones of the chain), bears the appellation of "*The White-leaved Oak*," but after several visits to the place Mr. L. could never find any remarkable oak there, and was indeed assured by a man who had known the vicinity many years, that there had formerly been an oak there with light or whitish foliage, but that it had been cut down. Here the matter rested till 1841, when wandering about the syenitic protuberances at the extreme northern termination of the hills, Mr. L. fortunately came upon an oak whose leaves were variegated with white, growing on one of these rocky knolls, and it proved to be *Quercus sessiliflora*, doubtless similar in the character of its foliage to the old "*White-leaved Oak*" that has bequeathed its name to the hamlet before mentioned.

The prevalence of West, South-west and Southern winds at Malvern, especially during the winter and spring months, gives an almost perpetual moisture to the grassy turf favourable to Cryptogamic growth; but the violence of the winds has the effect of keeping the Phænogamic vegetation in a very dwarf state, especially near the summits of the hills. This is observable particularly in *Carlina vulgaris*, which is often very luxuriant at the base of the hills and only a few inches in height on the summit of the Herefordshire Beacon.—Other plants seem influenced in the same way, as *Myosotis collina*, which on the ridge scarcely peers above the soil and is excessively hirsute. The following are the rarer plants not alluded to in Mr. Lees' former paper.

Veronica montana	Tulipa sylvestris	Aquilegia vulgaris	Genista anglica
Myosotis collina	Colchicum autumnale	Helleborus viridis	Lathyrus Nissolia
versicolor	Vaccinium Myrtillus	Mentha Pulegium	Vicia Bithynica
Cynoglossum sylvaticum	Polygonum Bistorta	Nepeta Cataria	Hypericum calycinum
Hyoscyamus niger	Pyrola minor	[ilium Lathræa squamaria	Androsæmum
Campanula patula	Chrysosplenium alternifo-	Antirrhinum Orontium	dubium
latifolia	Sedum Telephium	Orobancha major	Tragopogon pratensis
Trachelium	album	Lepidium Smithii	minor
Viola hirta	Spiræa Filipendula	Cardamine impatiens	Gnaphalium sylvaticum
Linum usitatissimum	Potentilla argentea	amara	Conyza squarrosa
Galanthus nivalis	verna	Erodium cicutarium	Pulicaria vulgaris
Narcissus Pseudo-narcis-	Tilia grandifolia	maritimum	Listera Nidus-avis, and
biflorus	[sus parvifolia	Geranium lucidum	Orchideæ before named

Many of the specimens were exhibited, and Mr. Lees proposed to advert to the Cryptogamic vegetation of the hills (sending specimens to the Society) in a future paper.—*G. E. D.*

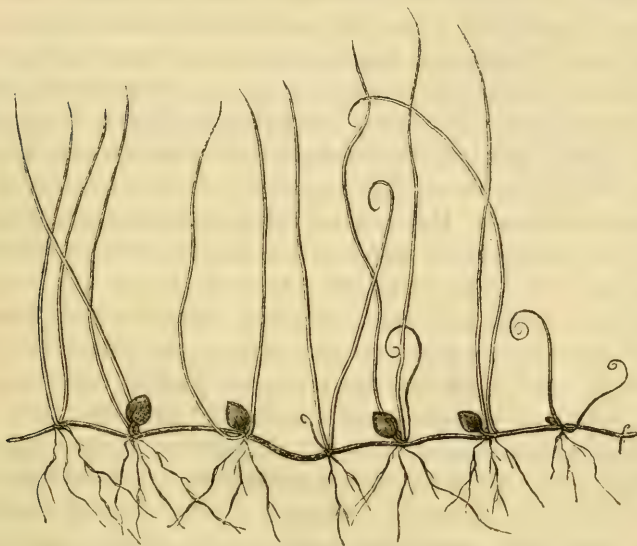
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ART. LXIII.—*A History of the British Lycopodia and allied Genera.*
By EDWARD NEWMAN. (Continued from page 160).



PILL-WORT OR PEPPER-GRASS.

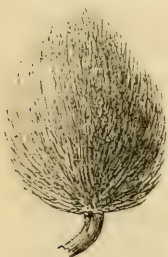
PILULARIA GLOBULIFERA of Authors.

THE Pill-wort or Pepper-grass seems pretty generally, though not plentifully, distributed over the United Kingdom. It is found on the extreme margins of ponds, or on swampy ground, submerged during the winter and more or less exposed during the summer. It is sometimes so abundant as to form a dense and almost inextricably matted covering to the ground. In no instance that has come to my knowledge has it been found in deep water, or in a state of constant submersion.

The figures of this plant are generally characteristic, but nearly all of them err in not representing it sufficiently slender; the best I

have seen are those by Bernard de Jussieu, published in the 'Mémoires de l'Académie Royale des Sciences,'* and by Mr. Valentine, in the 'Transactions of the Linnean Society.'† Both these authors have given full and interesting details of its history, and seem so completely to have preoccupied the ground as to leave little or nothing for me to add. An abstract of Mr. Valentine's paper has already appeared in 'The Phytologist' (Phytol. 55), and a second detail of his observations would not be justifiable.

The roots are generally two or three inches in length, very flexible, slender, and but slightly branched; they are hollow, and divided by several longitudinal septa; they appear to descend perpendicularly into the mud or moistened earth in which the plant is found: they spring from a creeping rhizoma, which is also hollow and longitudinally divided; it is very slender and cylindrical, and the terminal or growing portion is invariably covered with a close investment of scales or scale-like hairs; these, like a similar investment common to the creeping rhizomata of *Polypodium vulgare*, *Davallia canariensis*, and several other ferns, fall off with age, leaving the rhizoma perfectly naked and smooth. The roots spring from the rhizoma at intervals of considerable regularity, usually measuring about the third of an inch: they are generally three or four in a cluster, and immediately above them rise an equal number of erect, slender, smooth, setiform, pointed leaves: these are hollow like the roots and rhizoma; they are rather longer than the roots, and when they first make their appearance are rolled up in a manner precisely analogous to that exhibited in the circinate veneration of ferns. At many of the points of the rhizoma whence spring the leaves and roots, it also emits a small lateral branch, which bears leaves and roots at intervals like the parent rhizoma; and when this, in the course of nature, decays, these lateral branches continue vigorous, and become the nuclei whence future plants originate. The lateral branches occur with great regularity alternately on the right and left of the parent rhizoma; in proportion to their distance from the terminal point of the rhizoma these lateral branches increase in length, and the angles at which they join it become more and more obtuse.



The capsule is placed on a short stalk in the axil of the leaves: when full grown it occasionally attains the size of an ordinary pepper-corn, and is nearly spherical, but slightly elongated at its apex; it is closely covered with

* 1739, p. 256, tab. xi.

† Trans. Linn. Soc. xviii. 483.

a dense investment of hair. When mature* it opens at the apex, dividing longitudinally into four parts, each of which continues attached by its inferior extremity to the common footstalk.

Each of these four parts is hollow, and its cavity, which retains the figure of a quarter sphere, is filled with an hermaphrodite flower composed of stamens and pistils arranged on a common placenta. This placenta is a membranous band attached to the interior spherical portion of the membrane which invests the capsule. The pistils, according to Jussieu, are ranged on the inferior part of the placenta, and consequently occupy the lower portion of the common receptacle, as exhibited in the annexed cut, which is copied, with some slight alterations, from Mr. Valentine's figure.† The shaded bodies represent the so-called pistils of Jussieu, and one of these detached is represented below, with its gelatinous covering, the result of immersion



in water. The upper part of each cell is occupied by smaller granules, which are described as stamens, but this appears a somewhat vague conjecture, their office as such never having been clearly proved. Whatever may be the correct designation of the larger granules in their earlier state, it is quite certain that they ultimately become true seeds; for both the authors quoted have succeeded in tracing their germination, and have recorded their observations on the subject with a close correspondence which mutually proves their accuracy and precision; the improvement in the structure of microscopes and the more artistical drawing of Mr. Valentine giving however a decided superiority to his illustrations. These observations are made on the assumption that Mr. Valentine was entirely unacquainted with the contents of M. Jussieu's admirable essay, which, from an observation in his introductory remarks, I most readily believe.



According to Jussieu the seeds of *Pilularia* are to be found in the months of September and October, floating on the surface of the water and germinating in that situation.

EDWARD NEWMAN.

* This description is quoted nearly verbatim from Jussieu, l. c.

† 'Trans. Linn. Soc.' xviii. tab. 35, fig. 30.

ART. LXIV.—*Sketch of an Excursion to the Clova Mountains, in July and August, 1840.** By WILLIAM GARDINER, Esq., Jun.

IN company with a botanical friend, I left Dundee on the morning of the 27th of July by the first railway train for Glamis, where we arrived about half past 10 o'clock. Between that place and Kirriemuir nothing of consequence attracted our attention, except abundance of *Galeopsis versicolor* in the cornfields, and the unusual beauty and exuberance of the more common flowers. We despatched our baggage to Clova from Kirriemuir, and walked on ourselves for the purpose of botanizing by the way. From the latter place to Cortachy there was little to cheer us save our own glad thoughts and joyful anticipations, and the beauty of the scenery through which we passed, steeped in the bright radiance of a summer sun. Beyond Cortachy, however, we began to come among the mountains, and some traces of subalpine vegetation made their appearance. *Agrostis vulgaris* var. *γ. pumila* was our first acquisition, and soon after we came upon *Habenaria bifolia* and *Narthecium ossifragum*, both very common to subalpine places, such as the Sidlaw Hills. We next met with *Viola lutea* in grassy places by the waysides; and this beautiful mountain violet occurred more or less profusely all the way up the glen to its very top. On little knolls beyond a miserable public-house dignified by the high-sounding appellation of the Red Lion Inn, we met with *Habenaria albida*: and being now at the foot of the mountains we made a short deviation from the road, and gathered from a large detached rock *Alectoria jubata* var. *β. chalybeiformis* and *Andræa rupestris*. By the sides of rills abundance of *Saxifraga stellaris* and *aizoides* showed themselves, and on the heaths we picked a single stalk of *Erica Tetralix* with white flowers, and one or two of the pink-flowered variety of *E. cinerea*. Farther up the Glen we found *Meum athamanticum* in abundance by the waysides, and by the margin of the Esk grew *Carex aquatilis* in great luxuriance, along with *Galium boreale*, and here and there a specimen of *Cnicus heterophyllus*. Some little distance beyond the "smithy" *Pyrola media* occurred, though sparingly and past its prime, as was *Polygonum viviparum* with which it was associated. *Alchemilla alpina* now showed itself, and was our constant companion wherever we went, during our stay at Clova.

Pretty well loaded for the first day, we reached the hamlet of Clova in time to enjoy the glorious spectacle of an alpine sun-set, and soon

* Read before the Botanical Society of Edinburgh, December 10, 1840.

after did complete justice to the good cheer prepared for us by Mary Findlay.

We next morning went up the mountains to Loch Brandy, for the twofold purpose of enjoying the sight of its wild and picturesque scenery, and searching out the botanical treasures of its surrounding rocks. On the marshy banks of the stream by which we ascended we found *Veronica serpyllifolia* var. β . *alpina*, *Epilobium alpinum* and *alpinifolium*, and great profusion of *Saxifraga aizoides* and *S. stellaris*. These plants we afterwards found more or less abundant by the sides of all the streams in the district which we examined. The first view we had of the Loch was from an unfavourable position, and we felt disappointed; but as we advanced up the steep hill on the left hand side, our admiration increased at every step, till at length, having gained the summit, and descended a few yards among the overhanging cliffs, the whole grandeur of the scene burst upon our enraptured gaze. Far below lay the dark lake, slumbering in its mountain solitude, while around it rose, guardian-like, the mighty cliffs, sunning their rugged brows in the sweet light of the morning, and looking proud in their magnificence. Quietness brooded in the still air, and no sound was heard to break the awful tranquillity, save when the distant bleat of a sheep fell upon the startled ear, or the plaintive tones of my companion's flute awoke the echoes of the wild rocks. We feasted ourselves for some time on the sublimity of this alpine picture, and then turned our attention to the gems of beauty which the fair hand of Flora had profusely scattered around. We here gathered *Azalea procumbens*, *Gnaphalium supinum*, *Rubus Chamæmorus*, *Lycopodium Selago* and *alpinum*, *Polytrichum alpinum*, *Conostomum boreale*, *Splachnum mnioides*, and, at the risk of breaking our necks, *Cerastium alpinum* and *Saxifraga hypnoides*. At the head of the Loch we descended by a terrific water-course to its margin, collecting in our way *Saxifraga oppositifolia*, *Salix herbacea*, *Hieracium alpinum*, *Rhodiola rosea*, *Weissia acuta*, *Didymodon capillaceus* and *rigidulus*, the latter but sparingly; and among the rocks on the banks of the Loch there was an exuberance of *Arbutus Uva-ursi* and *Vaccinium Vitis-idaea*, but neither of them in flower.

We went round about the small lochs looking for *Isoetes lacustris*, and picked up a specimen or two, but saw no appearance of it in a growing state, and did not think of wading in search of it, otherwise we should have reaped a rich harvest, as it was found, along with *Loelia Dortmanna*, in the greatest abundance, by my friends Messrs. Croall and Kerr, in September. Among the rocks, just where the

southmost stream issues from the Loch, we met with the elegant *Hypnum Silesianum*. A little farther down we came upon some fine tufts of *Aspidium Lonchitis*, and before reaching the hamlet plenty of *Polypodium Phegopteris*.

Our next excursion was to Glen Dole, and a perilous one it was, partly owing to our inexperience of the place. On leaving the hamlet we picked a few specimens of *Carex ovalis*; and at Bradooney we spent a considerable time searching for *Oxytropis campestris* among "rocks facing the south," but found only *Habenaria viridis* and *Marchantia hemisphærica* for our trouble. *Oxyria reniformis* was plentiful on the banks of the Esk near Acharne, but we found it in a much finer state on a small island in the Dole, near where it is joined by Kilbo Burn. On this island there was also abundance of *Valeriana officinalis*, *Solidago Virgaurea* and *Festuca ovina* var. ϵ . *vivipara*: the latter plant was plentiful in many places, but nowhere finer than here. We went up Glen Phee a considerable distance, but finding nothing except *Juniperus communis* and *Arbutus Uva-ursi*, retraced our steps and ascended the face of Craig Rennet by an untrodden path, so precarious that the very recollection of it almost curdles the blood in one's veins. Our toil was rewarded, however, with fine specimens of *Silene acaulis*, *Andræa alpina*, *Conostomum boreale*, *Weissia acuta*, *Jungermannia nemorosa*, var. β . *purpurascens*, &c.; and on the summit there was abundance of *Cetraria Islandica*. This interesting lichen, which we had hitherto looked upon as a rarity, was plentiful on all the Clova mountains which we visited, and in fine condition, though barren. Proceeding along the ridge towards Craig Maid, we found in boggy places *Vaccinium uliginosum*, and several beautiful patches of *Splachnum sphæricum*; and on the summit of Craig Maid *Luzula spicata*. We had intended to have gone to the White Water and come round by the head of Glen Dole, but time forbade, as the day was wearing to a close, and we therefore determined to attempt descending into Glen Dole. The ascent of Craig Rennet had inured us to danger, and we did not hesitate to choose for our path a wild and dismal-looking water-course that led us down the very face of Craig Maid. By caution and perseverance we accomplished our task, and reaped in our way a rich botanical harvest. Among our acquisitions were the beautiful *Lycopodium annotinum*, *Hieracium alpinum* and *Halleri*, *Cnicus heterophyllus*, *Aspidium Lonchitis*, *Rhodiola rosea* in great perfection, and various other species which we had previously met with.

During our stay at Clova we made two other trips to Glen Dole.

The first of these was on the 31st of July. We ascended Craig Mellon from Acharne, collecting in our way fine specimens of *Gnaphalium supinum*, *Saxifraga oppositifolia* and *Lycopodium selaginoides*, and on the stones at its summit *Lecanora ventosa*. Proceeding along the ridge we picked specimens of *Bryum alpinum* and a few *Jungermannia*, and came upon the Dole at its junction with the White Water. About the falls we gathered *Rhodiola rosea*, *Lycopodium annotinum*, *Cnicus heterophyllus* and a variety with deeply cut leaves, *Thalictrum alpinum*, *Hieracium pulmonarium*, *Carex curta*, *fulva*, *sylvatica*, *binervis* and several others, *Salix alba* and *arenaria*, *Pyrus aucuparia*, *Veronica alpina* and *Phleum alpinum*. The two latter plants occurred, though sparingly, both above and below the falls. In the crevices of the rocks below we found *Bryum elongatum*, *crudum* and *ventricosum*, and a slender state of *Trichostomum aciculare*. On the banks of the White Water above the falls we met with *Juncus triglumis*, and proceeding round by the shieling at the head of Glen Dole we collected *Melampyrum pratense*, *Cornus suecica*, and *Rubus Chamæmorus* in flower and fruit.

On our third visit, August 5th, we examined some of the rocks a short distance below the falls of the White Water, and had the good fortune to discover the beautiful *Hypnum Crista-castrensis* in fructification, and the rare *Dicranum polycarpon*; and on the moist precipices almost within reach of the spray, a few specimens of *Erigeron alpinus* and *Asplenium viride*. *Jungermannia Blasia* occurred in crevices of rocks by the side of the Dole. At the head of Glen Dole, after an eager search, we came upon the bog where *Carex rariflora* grows, and found it in the greatest profusion. Before we had satisfied ourselves with the much-prized rarity, the evening mist had gathered around us, and so densely, that we could not see more than a few feet beyond us. Had we not taken our bearings well we should have been truly bewildered, and run the risk of ending our career at the bottom of the neighbouring precipices; but by the aid of our compass we managed to reach the shieling, and the shepherd carefully put us on "Jock's road," which, though not a very "redd" road, led us safely down the glen.

We spent a day on Carlowie hill gathering lichens, for few flowering plants of interest were there, except *Arbutus Uva-ursi*. We picked from the rocks and stones numerous specimens of *Gyrophora cylindrica*, *proboscidea* and *polyphylla*, *Cornicularia tristis* and *lanata*, *Stereocaulon paschale*, *Sphærophoron coralloides* and one tuft of var. β . (the *Sph. fragile* of Acharius) in fructification. These lichens were

also abundant on the hill above the hamlet of Clova, as well as several others, particularly *Lecanora tartarea* and *Parmelia omphalodes*. On the "Greenhill," south of Loch Brandy, we found *Spergula subulata* and *Azalea procumbens*.

To the Bassies mountain we made two visits, and found several good things. *Azalea procumbens* was plentiful on its summit, associated with *Salix herbacea* and *Juncus trifidus*: the specimens of the latter plant gathered here, however, were stunted and insignificant in their appearance compared with the fine tufts which we culled from the fissures of the rocks about half way down. *Carex rigida* was frequent; *Alchemilla alpina* literally mantled the mountain with its silvery foliage; and we noticed *Sibbaldia procumbens* and *Tofieldia palustris*, but without flowers. On the summit there was a profusion of *Cetraria nivalis*, and we also gathered *Solorina crocea*, *Cornicularia aculeata* in fruit, *Lecidea fusco-lutea* and *Splachnum sphæricum*; and in a bog was *Polytrichum juniperinum*, var. β . *gracilius* (the *P. strictum* of Menzies). Between Bassies and Scorie there was plenty of *Conostomum boreale* and *Polytrichum hercynicum*, together with *Dicranum Starkii*, *subulata* and *virens*. *Polytrichum alpinum* was in abundance everywhere on the mountains at a good elevation. By the side of a watercourse in descending from the Bassies we met with a specimen or two of *Alopecurus alpinus*, *Hieracium alpinum* and *Halimolobos*; but the most interesting of our acquisitions on the Bassies was *Jungermannia ciliaris* *with calyces*, which are of exceedingly rare occurrence. The calyx-bearing plants were very small and perfectly procumbent, growing among tufts of *Dicranum scoparium*. We also found on this mountain beautiful specimens of *Tetraphis pellucida* in fruit.

On the banks of the Esk about Clova there was plenty of *Carex ampullacea* and *Geranium sylvaticum*, with *Galium palustre* var. β . *Witheringii* and *Cnicus heterophyllus*; and we also found *Rumex aquaticus* and *Rubus suberectus*. The latter plant occurred in many places in the valleys as well as on the mountains.

On our return down the glen we met with nothing that we had not previously seen in the district, except *Triodia decumbens*, which grew on small hillocks by the waysides.

This being our first visit to these mountains the ground was entirely new to us, and particular localities quite unknown, so that we were unsuccessful in obtaining many of the rarities which are there to be found. Professor Balfour, who is intimately acquainted with the district, procured, just before we left, *Dryas octopetala*, *Veronica saxati-*

lis, *Linnæa borealis*, *Malaxis paludosa*, *Sonchus alpinus* and *Salix lanata*. From my second visit, which I hope to be able to make this summer, better results may reasonably be anticipated.

WILLIAM GARDINER, Jun.

Dundee, March 4, 1842.

ART. LXV. — *Notes on Arenaria rubra, marina, and media.*

By SAMUEL GIBSON, Esq.

Hebden Bridge, May 5, 1842.

SIR,

A difference of opinion having long existed as to whether *Arenaria rubra* and *marina* are two distinct plants, or only varieties of one species; in order to set this question at rest in my own mind, I procured specimens of the two plants from every locality where I could possibly get them from, either by sending to my friends or by collecting them myself. After collecting what specimens I could get, I gave them a careful examination, and am now of opinion that *Arenaria rubra* and *marina*, and the *media* of Linnæus, all three possess permanent characters sufficient to keep them distinct as species. *Arenaria marina* and *media* I have found plentifully growing together, each retaining its characteristic marks; the seeds of *media* being bordered with a striated membrane, while those of *marina* are destitute of such a border.

What Sir W. J. Hooker's *Arenaria rubra* may be I know not. The calyx is said to be nerveless; such a character I have not been able to find in any of the three forms. It may require further investigation in order to decide whether or not Sir W. J. Hooker's plant be something very different from anything I have ever seen; but what specimens I possess will answer to the following descriptions.

1. *Arenaria rubra*, (Red Sandwort). *Stems* procumbent, smooth, except near the flowers, where they have a few glandular hairs such as cover the calyx and flower-stalks: *leaves* linear, flat, terminating in a small bristle: segments of the *calyx* ovate, acute, *three-nerved*, the two lateral nerves very short, the middle one as long as the segment: *seeds* small, somewhat pyriform, thick in proportion to their breadth, rough all over with raised points.

My specimens are from Huddersfield, Halifax, &c.

β. brevifolia, mihi. This variety differs from the more common state of *Arenaria rubra* in the internodes of the stems and the leaves being only about half the length, and in the flowers being more numerous, &c.

Common in the neighbourhood of Manchester, as at Kersal Moor, &c.

2. *Arenaria marina*, (Marine Sandwort). *Stems* procumbent, smooth: *leaves* as long as the internodes, blunt at the point, semicylindrical: *capsule* as long as the calyx: segments of the *calyx* ovate, three-ribbed, ribs pellucid: *seeds* ear-shaped, thickened and rough on their edges, depressed and nearly smooth in the middle, nearly twice the size of those of *Arenaria rubra*.

This appears to be somewhat rare; some of my specimens are from the Yorkshire coast at Bridlington and Scarborough, and others from near Liverpool.

β. hirsuta, mihi. This differs from the above in the stems being wholly covered with glandular hairs.

My specimens are from Newlyn Cliff, near Penzance, Cornwall.

3. *Arenaria media*, (Smooth-seeded Sandwort). *Stems* procumbent, smooth: *leaves* as long as the internodes, blunt at the point, semicylindrical, fleshy, flaccid when dry: *capsule* twice the length of the calyx: segments of the *calyx* obovate, three-nerved, nerves pellucid: *seeds* ear-shaped, smooth, much larger than those of *Arenaria marina*, with a broad, white, striated border.

This appears to be the most common of the three plants, as I have specimens from the following localities, viz., North shore, Liverpool, Southport &c., Lancashire; Wal-lazey pool, Cheshire; &c. I also have it from two three localities in Ireland, and others from Scotland.

If you should think the above remarks worthy a place in your periodical, they are at your service.

Yours, &c.

SAML. GIBSON.

To the Editor of 'The Phytologist.'

ART. LXVI.—*On the escape of Fluid from the Apex of the Leaf of Richardia ethiopica*, Kunth, (*Calla ethiopica*, Linn.) By EDWIN J. QUEKETT, Esq., F.L.S., B.S., &c.

MY attention having been directed to this fact by my friend Mr. Ward, and having a large case constructed after his plan for the growth of plants, I placed within it, in the summer, with numerous

others, a healthy specimen of *Richardia æthiopica*, which was kept well supplied with water. It was soon perceived that the dripping from the apex of the leaf had commenced, and it continued as long as the weather was warm.

On experimenting on this plant it was found that the greatest number of drops in a given time were to be obtained soon after the sun had ceased to shine on the plant, which was at mid-day; the number never exceeded one in a minute, and generally they were not so frequent as this. I was anxious to collect some of the fluid in order to analyze it, and suspended a small vessel near to the apex; during the day and night I could thus obtain two or three drams from one leaf. It was perfectly bright in colour and tasteless, and on applying tests which usually exhibit impurities in water no reaction could be obtained. The plant was sometimes watered with a decoction of logwood, yet no indication of its presence could be detected in the colour of the fluid, or by the salts of iron; in fact it appeared to be pure water, notwithstanding that lime and other matters must have been present in the water applied to the roots.

Reflecting on the purity of the fluid, and how the plant could so effectually separate the soluble impurities from the water absorbed, I was at a loss to conceive how such a quantity could escape from the minute apex, which it always did, and not from sundry other spots then trickling towards the point, previous to its falling from the leaf.

As the escape of this fluid does not often occur when the plant is out of doors, or if the sun shines on it when confined under glass, it was imagined that under either of these conditions the evaporation from the surface of the plant might be sufficient to carry off any excess of water sent by the roots into the interior, under the stimulus of increased temperature; and that when evaporation could not so proceed, the channels which conveyed the fluid became surcharged, and the apex, which seems as it were the confluence of numerous minute streams, gives exit to the excess collected on account of suppressed evaporation.

It became necessary to apply to the anatomy of the leaf in order to account for and prove the escape of the fluid from the apex. The leaves of this plant are arrow-shaped, and terminated by a nearly cylindrical point, varying from half an inch to three quarters in length, and about the twentieth part of an inch in diameter. The venation makes one of the exceptions to the general rule, that the leaves of all *Endogens* are straightly veined, for in this leaf is to be noticed an arrangement of veins somewhat analogous to that of an *Exogenous*

plant, being in this instance especially allied to the leaf of a plant belonging to the order Myrtaceæ, on account of the presence of a distinct marginal vein. A strong midrib proceeds from the petiole for some distance up the leaf, and is gradually attenuated and expended by giving off numerous branches, which take a curved direction outwards and forwards, and which are intercepted before they reach the margin, by the vein running parallel to the circumference, which has its commencement at the petiole and its termination in the apex; consequently each vein has a tendency to carry its fluid towards the apex by the intervention of this marginal vein. And there is no doubt that the fluid is conducted by these courses, for if any one be wounded by a sharp instrument, dropping will proceed from the wound as well as from the point; besides, the veins do not form prominent opaque ribs as in many exogens, but are level with the surfaces of the leaf; and when examined by transmitted light they appear the most transparent portions, an indication of their being full of fluid.

If the attenuated apex of the leaf be examined by dissection, microscopically, it will be found to present some few stomata on its cuticle and a dense bundle of vessels in its centre, surrounded by cellular tissue containing multitudes of acicular raphides; and I could never carry the dissection fine enough to discover whether or not these vessels communicate with the surface or the caverns with which the stomata are connected.

From the anatomy of the leaf it would appear that the surcharged vessels all propel their contents towards its point, and the excess finds the means of escape as through a filter.* It cannot be from gravity, for it occurs whilst the young leaf is making its appearance, before it unrols, when the sharp-pointed apex is in the most elevated position, being quite perpendicular. If it occurred only when the leaf was pendulous, it might be imagined that the liquid was condensed in the cavernous tissue of the leaf, and escaped through the stomata from gravity; but as this is not the case, it must be considered that this peculiarly constructed apex is a beautiful provision—a kind of natural safety-valve, for permitting the superabundance of watery fluid to be readily removed, the retention of which might be connected with unhealthy action in the economy of this elegant plant.

The escape of fluid from the apex of the leaf is not peculiar to *Richardia*, as many other plants, when grown under glass will exhibit

* The apex of the spathe, in its early state, will also exhibit the phenomenon; as will also a leaf when a fifth of its point has lost the signs of vitality.

the phenomenon, as young plants of barley and wheat ; consequently I conceive that there must be some special contrivance of nature in these leaves, perhaps in all leaves, to guard against the accumulation of watery fluid.

The opportunity of witnessing these experiments can in no way be so successfully obtained, or their results so satisfactorily examined, as in Mr. Ward's cases ; which gives us another instance of the useful adaptation of this plan to the pursuit of experimental inquiries respecting the functional operations performed during the growth of plants.

EDWIN J. QUEKETT.

50, Wellclose Square,
May 16th, 1842.

ART. LXVII. — *Analytical Notice of a treatise 'On the Growth of Plants in Closely Glazed Cases.'* By N. B. WARD, F.L.S.
London : John Van Voorst. 1842. 8vo.

THE lovers of Nature and of Nature's works are deeply indebted to the author of this treatise, for showing them by what means plants may be made to grow and thrive in situations where few could even exist before. For although the fact that plants will live and grow without direct communication with the external atmosphere, may have been often observed long before the fern and grass sprang up in Mr. Ward's closed glass cylinder, yet to that gentleman is undoubtedly due the sole merit of so closely reasoning upon a simple circumstance unexpectedly brought under his notice, as to have deduced from it principles which have already led to important results, while it is not improbable that consequences still more important yet remain to be disclosed.

By means of this mode of cultivating plants, the botanist may create for himself, even within the "brick-wall bounds" of any of our large towns, such a scene of natural beauty as will in some measure compensate for his exclusion from the pleasure of studying his favorites in their own native haunts. In many respects indeed he will be a gainer, in the facilities for study afforded by the naturalization of the denizens of the wild wood or the snow-capped mountain under his own roof, nay, even by his own fire-side : for rarely is a botanist placed in such favorable circumstances as to be able to do more than collect specimens of plants, as they are met with in his too often hur-

ried excursions ; and specimens so collected generally form the only materials with which is reared many a plausible hypothesis relating to specific distinction or identity. But now the student may have his plants living under his own eye — may watch their growth from day to day—from hour to hour. In the case of a fern, he may scatter its sporules and observe the first appearance of the slightest possible tinge of green on the surface of the soil ; then after a time he will note the expansion of the first seedling fronds ; and so step by step proceeds the progress of development, until he perceives with delight —

“ Each stem and leaf wrapped small,
Coil'd up within each other
Like a round and hairy ball.”

Then again how closely may he

—— “ Watch that ball unfolding
Each closely nestling curl,
And its fair and feathery leaflets
Their spreading forms unfurl ! ”

And all this pleasure and instruction he may secure, even in the most impure atmosphere, by the simple expedient of surrounding his protégés with glass, which, while it allows of the free passage of light, — a most essential condition in the culture of plants, effectually prevents the access of fuliginous matter and loss of moisture by evaporation, and at the same time ensures a calm atmosphere and a more equable temperature.

In the treatise before us Mr. Ward has published the results of his thirteen years' experience in the mode of growing plants in closely glazed cases. The work is divided into six chapters, and the contents of these we give below.

Chap. I.—*On the Natural Conditions of Plants.* Unless we possess some knowledge of the conditions which regulate the growth of plants in a state of nature, it is evident that our treatment of them in cultivation must be more or less defective. These conditions vary in an almost endless degree ; plants being “ influenced by the atmosphere, heat, light, moisture, varieties of soil, and periods of rest.” The growth of plants is most sensibly affected by the purity or impurity of the atmosphere : the heat to which they are subjected has a range, at different seasons and in different countries, of not less than 150° : the intensity of light “ varies from almost total darkness to a light double that of our brightest summer's day : ” then again “ the

states of moisture vary as much as those of heat and light": varieties of soil also visibly affect plants: and lastly —

"All plants require rest, and obtain it in some countries by the rigour of winter; in others by the scorching and arid heat of summer. Some, "after short slumber wake to life again," while the sleep of others is unbroken for many months. This is the case with most alpine plants, and is necessary to their well-being. * * In Egypt the blue water-lily obtains rest in a curious way. Mr. Traill, the gardener of Ibrahim Pacha, informed me that this plant abounds in several of the canals at Alexandria, which at certain seasons become dry; and the beds of these canals, which quickly become burnt as hard as bricks by the action of the sun, are then used as carriage-roads. When the water is again admitted the plant resumes its growth with redoubled vigour."—p. 5.

On the power possessed by plants of adapting themselves in a certain degree to the circumstances in which they are placed, the author remarks: —

"To suit all the varied conditions to which I have thus briefly alluded, and under which plants are found to exist, they have been formed by their Almighty Creator of different structures and constitutions, to fit them for the stations they severally hold in creation; and so striking are the results, that every different region of the globe is characterized by peculiar forms of vegetation. A practised botanical eye can with certainty, in almost all cases, predict the capabilities of any hitherto unknown country, by an inspection of the plants which it produces. * * But in order to give us a clearer idea of the "strong connexions, nice dependencies," existing between climate and vegetation, let us survey plants in a state of nature. We shall find some restricted to certain situations, while others have a wide range, or greater powers of adaptation. It is not perhaps going too far to assert, that no two plants are alike in this particular, or in other words, that the constitution of every individual plant is different. Of the former, *Trichomanes speciosum* is an example, it not being able to exist, even for a short time, in a dry atmosphere: of the latter, familiar examples are presented to us in the London Pride and the Auricula; these of course grow in greater or less luxuriance, as the conditions are more or less favorable."—p. 6.

Chap. II. — *On the Causes which interfere with the Growth of Plants in large towns.* Among these are more particularly mentioned "deficiency of light, the dryness of the atmosphere, the fuliginous matter with which the air of large towns is always more or less loaded, and the evolution of noxious gases from manufactories." The author expresses his belief that the generally depressed state of vegetation in large towns, is chiefly due to the quantity of soot floating in the atmosphere; and that although deficiency of light and moisture certainly exerts an influence to a certain extent, yet that neither of these, nor the evolution of noxious gases, nor the three combined, is the sole or even the chief enemy to the growth of plants in a town atmosphere. After quoting from Mr. Ellis's paper in the

‘Gardeners’ Magazine’ for September, 1839, that part which relates to the observations and experiments of Drs. Turner and Christison on the effects of sulphurous and muriatic gases upon vegetation, the author observes :—

“The correctness of the above observations of Messrs. Turner and Christison, as to the effects of sulphurous and muriatic acid gases upon plants, cannot for one moment be doubted; and that plants suffer when exposed to a direct current of these gases, before there is time for diffusion through surrounding space, is equally matter of fact; but I contend, that it yet remains to be proved that there exists generally in the atmosphere of London, or other large cities, such a proportion of these noxious gases as sensibly to affect vegetation. We shall find in the windows of shops and small houses, in numerous parts of London, hundreds of geraniums and other plants, growing very well and without any crisping or curling of the leaves, care being taken in these instances to keep the plants perfectly clean and free from soot; and it is certain, that although my cases can and do exclude the fuliginous portion of the atmosphere, and certainly protect the plants from the effects of any direct current of hurtful airs, they cannot exclude that portion which becomes mixed with the atmosphere.”—p. 17.

The author gives various examples of the rapidity with which gases mingle with each other and with the atmosphere, under the influence of “a law constantly in action under all circumstances” and in all places, by means of which the several constituents of the atmosphere are ever preserved in their respective proportions.

Chap. III.—*On the Imitation of the Natural Conditions of Plants in closely glazed Cases.* At the commencement of this chapter the author gives such a pleasant description of the frustration of his early attempts to obtain something like country within the smoke of London, and of the occurrence which led to his subsequent success, that we must quote the passage entire.

“The science of Botany, in consequence of the perusal of the works of the immortal Linnæus, had been my recreation from my youth up; and the earliest object of my ambition was to possess an old wall covered with ferns and mosses. To obtain this end, I built up some rock-work in the yard at the back of my house, and placed a perforated pipe at the top, from which water trickled on the plants beneath; these consisted of *Polypodium vulgare*, *Lomaria spicant*, *Lastræa dilatata*, *L. Filix-mas*, *Athyrium Filix-femina*, *Asplenium Trichomanes*, and a few other ferns, and several mosses procured from the woods in the neighbourhood of London, together with primroses, wood-sorrel, &c. Being, however, surrounded by numerous manufactories and enveloped in their smoke, my plants soon began to decline, and ultimately perished, all my endeavours to keep them alive proving fruitless. When the attempt had been given up in despair, I was led to reflect a little more deeply upon the subject in consequence of a simple incident which occurred in the summer of 1829. I had buried the chrysalis of a *Sphinx* in some moist mould contained in a wide-mouthed glass bottle, covered with a lid. In watching the bottle from day to day, I observed that the moisture which during the heat of the day arose from the mould, became condensed on the

internal surface of the glass, and returned whence it came; thus keeping the mould always in the same degree of humidity. About a week prior to the final change of the insect, a seedling fern and a grass made their appearance on the surface of the mould."—p. 25.

After briefly stating the reflections to which this unexpected event gave rise, and having mentioned the conclusions arrived at, the author proceeds:—

"Thus, then, all the conditions necessary for the growth of my little plant were apparently fulfilled, and it remained only to put it to the test of experiment. I placed the bottle outside the window of my study—a room facing the north, and to my great delight the plants continued to grow well. They turned out to be *Lastræa Filix-mas* and *Poa annua*. They required no attention, the same circulation of the water continuing; and here they remained for nearly four years, the *Poa* once flowering and the fern producing three or four fronds annually. At the end of this time they accidentally perished, during my absence from home, in consequence of the rusting of the lid, and the admission of rain water."—p. 26.

The author next details his experiments on different plants, including *Trichomanes speciosum*, *Hymenophyllum*, *Jungermannia*, and *Crocuses* both with natural and artificial light; and describes his Tintern-Abbey house, his alpine case, drawing-room case and case with spring flowers; thus exhibiting to his readers the gradual development of his plans, until he conducts them to his "largest experimental house." In this house, erected in the scene of his early disappointments, perhaps on the very site of the rock-work on which no attentions could prolong the existence of some of our hardiest native plants, we now see not only the "wall covered with ferns and mosses,"—the earliest object of the author's ambition, but a host of botanical treasures from all parts of the globe growing side by side in the greatest luxuriance and beauty: the ferns especially, both native and foreign, appear to be quite at home; the tender and delicate *Trichomanes speciosum* being one of the most lovely objects in the collection, and *Osmunda regalis*, planted in March last, now has its noble fronds crowned with fructification.

The chapter concludes with the following remarks upon "the importance of reflecting on what we see around us."

"The simple circumstance which set me to work must have been presented to the eyes of horticulturists thousands of times, but has passed unheeded in consequence of their disused closed frames being filled with weeds, instead of cucumbers and melons; and I am quite ready to confess, that if some groundsel or chickweed had sprung up in my bottle instead of the fern, it would have made no impression upon me: and again, after my complete success with the ferns, had I possessed the inductive mind of a Davy or a Faraday, I ought, in an hour's quiet reflection, to have anticipated the re-

sults of years. I should have concluded that all plants would grow as well as the ferns, inasmuch as I possessed the power of modifying the conditions suited to the wants of each individual.”—p. 42.

Chap. IV.—*On the conveyance of Plants and Seeds on Ship-board.* After some observations on the means formerly employed for the preservation of plants during long voyages, the author thus proceeds:—

“But by far the greater number of plants require to be kept growing during the voyage; and, prior to the introduction of the glazed cases, a large majority of these plants perished from the variations of temperature to which they were subjected,—from being too much or too little watered,—from the spray of the sea,—or, when protected from this spray, from the exclusion of light.”—p. 46.

The author’s reflections on these causes of failure induced him, in June, 1833, to send out to Sydney two experimental cases filled with ferns and grasses, nearly the whole of which arrived there “alive and flourishing:”—

“The cases were refilled at Sydney in the month of February, 1834, the thermometer then being between 90° and 100°. In their passage to England they encountered very varying temperatures. The thermometer fell to 20° in rounding Cape Horn, and the decks were covered a foot deep with snow. At Rio Janeiro the thermometer rose to 100°, and in crossing the line to 120°. In the month of November, eight months after their departure, they arrived in the British Channel, the thermometer then being as low as 40°. These plants were placed upon the deck during the whole voyage and were not once watered, yet on their arrival at the docks they were in the most healthy and vigorous condition.”—p. 46.

Subsequent experiments with plants of a higher order were equally successful; and the following extract of a letter to the author from Mr. George Loddiges, is confirmatory of the importance of the plan.

“My brother and I have, since 1835, made trial of more than 500 cases to and from various parts of the globe, with great variety of success; but have uniformly found, wherever your own directions were strictly attended to,—that is, when the cases were kept the whole voyage in full exposure to the light, upon deck, and care taken to repair the glass immediately in cases of accident,—that the plants have arrived in good condition. * * Some of the cases have been opened in fine order after voyages of upwards of eight months: in short, nothing more appears to be wanting to ensure success in the importation of plants, than to place them in these boxes properly moistened, and to allow them the full benefit of light during the voyage.”—p. 86.

Full instructions are given for the construction of the cases and the preparation of the plants for the voyage.

Chap. V.—*On the application of the closed plan in improving the condition of the Poor.*

“Among the numerous useful applications of the glazed cases, there is one which

I believe to be of paramount importance, and well deserving the attention of every philanthropist: I mean its application to the relief of the physical and moral wants of densely crowded populations in large cities. Among the members of this population there are numbers, who, either from early associations, or from that love of Nature which exists to a greater or less degree in the bosom of all, are passionately fond of flowers, and endeavour to gratify their taste at no small toil."—p. 57.

After some observations on the importance of the free admission of light into human habitations, and on its influence upon the animal economy as well as upon vegetation, the author shows in what manner the innate love of Nature above alluded to may be gratified at a trifling expense. He however cautions the poorer classes "against indulging a taste for what are called fancy flowers—things which this year are rewarded with gold medals, and the next are thrown upon the dunghill"—as being opposed to the legitimate pursuits of horticulture. The beneficial effects of the study of Botany are next dwelt upon; and the interesting anecdote of Parke and the moss concludes the chapter.

Chap. VI. — *On the probable future application of the preceding facts.* The Wardian cases evidently furnish great facilities for experimenting on numerous doubtful matters connected with Botany, Horticulture and Agriculture, such as the effects of different soils and manures; the power of the roots in the offices of absorption and selection; the determination of the existence and nature of excretions from the roots, whether poisonous or otherwise; "the effects of poisons upon plants;" "the influence of light in protecting plants from the effects of low temperature;" various points respecting the development and growth of Fungi, and the other lower orders of vegetation; and the investigation of "that debatable ground on the confines of the animal and vegetable kingdoms, where in our present state of ignorance it is often impossible to determine the point at which one ends and the other begins;"—these are but a few of the *quæstiones vexatæ* in the settlement of which the glazed cases may be used with great advantage.

The author next adverts to the application of the principle on a large scale as "a remedial means of the highest order" in the treatment of numerous diseases which would readily yield "to the renovating influence of pure air," although without this auxiliary the skill of the medical man may be of little avail. He more particularly mentions measles and consumption as diseases in which a supply of pure air and a properly regulated atmosphere are of the greatest importance; and after speaking of the direct mortality arising from measles

in crowded districts of large towns, as well as the numbers of persons who die of diseases superinduced by neglect during the measles, he thus concludes :—

“ With respect to consumption, could we have such a place of refuge as I believe one of these closed houses would prove to be, we should then be no longer under the painful necessity of sending a beloved relative to a distant land for the remote chance of recovery, or too probably to realize the painful description of Blackwood : — “ Far away from home, with strangers around him,—a language he does not understand,—doctors in whom he has no confidence,—scenery he is too ill to admire,—religious comforters in whom he has no faith,—with a deep and every day more vivid recollection of domestic scenes,—heart-broken,—home-sick,—friendless and uncared for,—he dies.” —p. 71.

The interest we feel in the subject and our conviction of its importance, have perhaps led us to extend our notice of Mr. Ward’s useful book somewhat beyond our prescribed limits ; we however feel assured that we shall be readily excused for this by such of our readers as have used the Wardian cases, whether on the same humble scale as ourselves, or in the more superb style of Mr. Ward’s own large fernery. In conclusion, we would advise all whose love of Nature is not to be suppressed by the din and smoke of large towns, immediately to set to work, and we can venture to promise that the trifling trouble and expense they may be at, will be amply repaid by the gratification and the instruction they will derive from their observations ‘ On the growth of plants in closely glazed cases.’

ART. LXVIII. — *Notice of a ‘ History of British Forest Trees, Indigenous and Introduced.’* By PRIDEAUX JOHN SELBY, F.L.S., M.W.S. &c. London : John Van Voorst. Parts 4—9.

THE illustrations increase in beauty and the descriptions in interest as the work proceeds. The details of the inflorescence are drawn, engraved and printed in masterly style : the catkins of the goat willow at p. 168, of the aspen at p. 188, and of the alder at p. 221, are extremely pretty. Some of the vignettes also merit the highest praise : the artist’s “ bit ” at p. 193, with its cool and quiet shade, is “ beautiful exceedingly,” and so is the peep into a wood at p. 237. The portraits of the trees themselves still somewhat dissatisfy us : notwithstanding the skill and labour bestowed on them, the result is far from satisfactory. We are ever ready to exclaim, “ What a beautiful tree ! ” but we always refer to the accompanying letter-press to learn its name. It would appear to be a task of infinite difficulty to portray a tree so

exactly that its figure shall convey to the beholder a warrant of its identity. A familiar bird or insect is recognized at sight; but who shall select an oak, an ash, or an aspen from among the most faithfully drawn group of forestry? The fault is perhaps in the subject, not in the manner of execution. How many are there who, seeing the trees themselves tossing their sinewy branches in the breeze, would be unable to refer each to its particular species; how difficult therefore must it be for the pencil to seize on characters which the experienced eye shall often fail to detect! The work, in fine, must rest its claim to public patronage on the correctness of its details and the completeness of its descriptions, rather than on any striking likeness in the portraits of the trees themselves.

The author's remarks on the comparative value of timber are highly interesting and valuable. The Black Italian or Necklace Poplar (*Populus monilifera*) is the subject of high encomium. "The wood is of a greyish white colour, tough when seasoned, and if kept dry very durable; its great size renders it fit for the largest buildings, and as flooring for manufactories and other erections nothing can surpass it, as in addition to the property of not splitting by percussion, it possesses the peculiar advantage of not easily taking fire, and even when ignited burning without flame or violence."—p. 201. The last-named quality is an excellence of more than ordinary importance: what an amount of human life and property might be saved by the use of timber which would thus arrest or even retard the awful power of flame!

Speaking of the beech Mr. Selby tells us that when this noble tree is grown singly or in hedgerows it is, "from its dense and widely-extended shade, and the deleterious nature of its drip, more injurious to the herbage beneath than any other tree: and here we may also remark, that one of the greatest disadvantages attending Beechen woods or groves, is that no underwood or herbage, with the exception of some Orchideous and Cryptogamic plants, will thrive beneath their shade: even the hardy holly, a plant that flourishes and bears, comparatively unhurt, the drip and shade of many other trees, pines and languishes under the Beech; laurels and other evergreens, as well as deciduous shrubs, all speedily die when planted beneath its shade."—p. 312. Does not our author here lay too much stress on the drip of the beech? We should hesitate before attributing this deleterious effect to any other cause than the exclusion of light, for we have often seen young beech contending for the mastery with a vigorous undergrowth of holly and wych elms; and although the beeches have outstripped their fellows, which much consequently receive their drip,

yet all are growing together in the most perfect amity and vigour. "For narrow upright hedges, to divide or enclose nursery grounds, gardens, or even small fields, the beech is superior to the hornbeam, or any other deciduous tree, as it not only bears the shears equally well, and may be trained to as great a height, but retains the leaves during winter, thus affording additional shelter and warmth, and giving a richness of appearance the others do not possess."—p. 315.

It is perhaps generally known that the Spanish chesnut, although here only occasionally eaten by the lower classes, forms in Italy and Spain a most important article of their food, serving in great measure as a substitute for bread or potatoes. The nuts are variously prepared, sometimes simply boiled or roasted, at others ground to flour; "of this flour, *la Galette*, a thickish kind of girdle cake, mixed up with a little milk and salt, and sometimes with the addition of eggs and butter, is made; *la polenta* is also another preparation made by boiling the chesnut flour in milk till it becomes quite thick; when made with water, it is eaten with milk in the same manner as oatmeal porridge in the north of England and Scotland. *Chatigna*, that is, chesnuds boiled and then mashed up as we do potatoes, is also another preparation common in France and Italy."—p. 329.

Of the Pine Mr. Selby gives a very complete and valuable history, detailing the botanical characters of the family to which it belongs, the peculiarity of its wood differing from that of dicotyledonous trees, the geographical distribution, the requisite soil, and various other particulars. With the following pleasantly written account of the fructification of the common pine we must conclude.

"The male flowers or catkins, when in bloom, are from half an inch to upwards of an inch long, and are placed in whorls at the base of the young shoots of the current year; the flowers contain two or more stamens with large yellow anthers, which discharge a sulphur-coloured pollen in great abundance. The embryo cones or female flowers appear on the summits of the shoots of the year, in number from two to as many as six, and of a green or purplish green colour. When impregnated, they become lateral and reflexed, and cease to increase in size till the following spring, when they again begin to swell, and by July attain their full size, ripening by degrees into ovate, pointed and tessellated, hard, woody cones, from one inch and a half to two inches long. These remain on the tree for a considerable time afterwards, though the seeds are discharged the following spring, and it is then that trees are frequently seen with cones in four different stages: viz., in the youngest or embryo state; in an unripe or green condition, but of full size; in a matured state, or when they have become brown; and lastly with the scales expanded, after the seed has been shed."—p. 396.

ART. LXIX.—*Varieties.*

152. *Enquiry respecting the Parasite on the Goldfish*, (Phytol. 190). In the last No. of 'The Phytologist' there is a notice of a paper read by Mr. Goodsir on the 11th of January last, at a meeting of the Botanical Society of Edinburgh, on a vegetable found on the gills and fins of a goldfish. Although Mr. Goodsir "gave a minute description of the parasite, explaining practically its form, structure, mode of fructification, &c." you have not even favoured your readers with the name of the vegetable, or given the slightest account of it. This I very much regret, as a friend of mine a few weeks since sent me a small carp, which he had kept in a pond, and which, it would appear, died from the same disease as that mentioned by Mr. Goodsir. We examined this fish, and found it covered with a minute vegetable substance, which we supposed to be a Conferva. Around the operculum it was very thick, and apparently obstructed the opening of this valve; the gills too were very much ulcerated and almost united into one mass by the parasitic covering. The internal organs were also inflamed, and near the heart we found a transparent mass, filled with a fluid, and which we conceived to be a hydatid.—*Hy. Jno. Turner; 47, Lower Stamford St., Blackfriars Road, April, 1842.*

[Our notice of Mr. Goodsir's paper was given verbatim from the report published in the Edinburgh Evening Post. We cannot learn that the parasite has yet received a name, and the only description we can meet with we have given below; it is from a report in Taylor's 'Annals' of the February meeting of the Royal Society of Edinburgh. Mr. John Quekett has obligingly furnished us with a notice of a very interesting fact observed by him in connexion with this parasite, which we have great pleasure in inserting.—*Ed.*]

153. *Description of the Vegetable parasitic on the Gold-fish.* "The concluding part of Dr. J. H. Bennet's paper on Parasitic Fungi growing on living animals was read, and as portions of it bear directly on Natural History, we shall briefly allude to these. Fungi of this description have previously been noted as occurring in the stickleback and common carp, but we are not aware that any particular description has yet been supplied of these fungi. Dr. Bennet had an opportunity of examining them upon the gold carp, *Cyprinus auratus*, having been persistent before death. To the eye they presented the appearance of a white cottony or flocculent matter attached to the animal. Under the microscope it presented two distinct structures, which were severally cellular and non-cellular. The former consisted of long tubes divided into elongated cells by distinct partitions. At the proximal end of several of these cells was a transparent vesicle about $\cdot 01$ of a millimetre in diameter, which the author considered to be a nucleus. Some of the cells were filled with a granular matter; others however were empty, the granules having escaped through a rupture of the tube or of the cellular walls. Besides these there were long filaments about $\cdot 06$ of a millimetre in diameter, which apparently sprung from the sides of the cellular tubes. They were uniform in size throughout their whole length, and were formed of an external delicate diaphanous sheath, and an internal more solid transparent matter. This vegetable structure sprung from a finely granular anorphous mass. Fungi of a similar kind were also found in the lungs of a man who died of pulmonary consumption, and from whose lungs they were also copiously discharged in the expectoration during life. The vegetable structure in this instance consisted of tubes, jointed at regular intervals, and

giving off branches generally dichotomous. They varied in diameter from '01 to '02 of a millimetre, and appeared to spring without any root from an amorphous, soft, finely granular mass. They gave off at their extremities numerous oval, round or oblong corpuscles, arranged in bead-like rows, which were considered reproductive sporules. The same appearances were found in the soft cheesy matter lining some of the tubercular cavities after death." — *From the 'Annals and Magazine of Natural History,' March, 1842, p. 66.*

154. *Note upon the Fungus parasitical on fishes.* Having seen that Mr. Goodsir of Edinburgh has described the parasite which infests the bodies of gold carp and other fishes, I imagined that the following incident concerning it might not prove uninteresting to your readers. About a month since I placed six newts in a tank of water in which there were some aquatic plants, and three small fish commonly called sticklebacks. One of these, the largest of the three, had the hinder part of its body covered with the plant. The newts had not long been in the tank, when my brother, Mr. Edwin Quekett, and myself, saw one of them in the act of nibbling away at the parasite, whilst the fish remained perfectly quiet: on disturbing them the same thing was repeated by another newt; the fish appeared much pleased, and even moved its tail frequently towards the newt, as though it were anxious to get rid of the parasitic growth. Whether the act of the newt were dictated by kindness I cannot say; probably these animals perform (as tench are said to do) the office of physicians to the diseased portion of the finny race.—*John Quekett; 50, Wellclose Square, May 23, 1842.*

155. *Note on the Oxlips from Bardfield, &c.* The oxlips kindly sent to me by Mr. H. Doubleday from Bardfield (Phytol. 204), and concerning which you enquire, appear to me to be the species intended by the figure in 'English Botany' (513), and also to be identical with Swiss and German specimens in my herbarium, which were sent to me under the name of "*Primula elatior, Jacq.*" The Bardfield specimens differ slightly from the figure in 'English Botany,' but not importantly, except in having the calyx decidedly shorter than the tube of the corolla. They are unlike any other English oxlips in my herbarium (all of which may be gradually traced either to the primrose or to the cowslip, by intermediate links), and, as appears to me, they may be safely pronounced the real representatives of *Primula elatior*. The dubious oxlip, gathered last year at Claygate, and mentioned in your first number (Phytol. 9), has this year flowered in my garden. It there grows in a much drier and a less shaded situation than that in which the wild root was found. In the form of the calyx, corolla, and leaf, it is now decidedly a primrose, although the umbel is elongated on a stout scape of five inches in height. In the deep colour of the corolla and the tint of the leaves, it has more nearly the cowslip hues: the pubescence is intermediate, but nearer that of the primrose. I consider the plant to be an umbelled primrose, but cannot account for the cowslip colours. Preparations for a botanical tour to the Azores (for which I expect to sail in two or three days) have prevented my giving attention to the subject of the oxlips this spring; and sundry experiments bearing upon the question of their relations to the cowslips and primroses that had been commenced will be interfered with by my absence, which I anticipate will continue for the whole summer and autumn. As far as my observations go, there is not any one point in the specific characters ordinarily given for the primrose and cowslip, which is constant in either. Each characteristic of the primrose may be seen in specimens that otherwise would be called cowslips, and *vice versâ*. The least variable, perhaps, are the very short and close pubescence of the cowslip, and the long weak hairs of the primrose. I have

never seen the primrose with obtuse sepals, however, though the cowslip has the sepals acute, obtuse, or quite rounded at the apex. The experiments on which Professor Henslow lays so much stress, are certainly of great value in relation to the distinctions of species, not merely in the genus *Primula*, but for systematic Botany generally. Still, they may be said to require confirmation; and one confirmation which appears to be requisite, is, that the experiment should be repeated by some botanist who would studiously avoid letting his gardener or any other party know the object of his experiment. I was once told by a gardener, that he had *helped* his master's horticultural experiments, during the absence of the latter, so as to produce the results which he supposed would gratify his master.—*Hewett C. Watson; Thames Ditton, May 1, 1841.*

156. *On the immersion of Specimens of Plants in Boiling Water*, (Phytol. 189). Having been induced from a report in 'The Phytologist' to try the effect of boiling water in preserving the colours of botanical specimens, I was much disappointed to find that it was, with me, quite ineffectual. *Lathræa squamaria*, one of the plants mentioned in the report, turned completely black on remaining in boiling water ten seconds; and in one specimen which was but partially immersed, that part only turned black, whilst the remainder has preserved its colour in a slight degree. By the same treatment the colour was extracted from the flowers of *Orchis mascula*, leaving the petals of a dirty brown hue; whilst specimens dried by the usual method partially retained their colour, and certainly their *form*, which the *boiled* ones did not. Specimens of other plants which I tried were all acted upon in a similar manner. It certainly appears very strange to me that others should succeed so perfectly, whilst I, using exactly the means prescribed, could not succeed in the least; and I think there must be something more than has yet appeared, either in the water or the subsequent treatment, in order to preserve the colour of such plants as *Lathræa squamaria* &c.—*Joseph Sidebotham; 26, York St., Manchester, May 5, 1842.*

157. *True office of the Earth in relation to Plants*. As the article 'On the true office of the earth in relation to plants' (Phytol. 173), seems to have been penned for the purpose of exciting discussion, I am surprized that you have as yet had no communications on the subject. I take the liberty of sending you a few remarks, as I cannot subscribe to the opinion which, in that article, Mr. Newman has endeavoured to maintain. The feeding of plants in order that they may afford food for man, is an important subject at this time; and if I understand Mr. Newman rightly, he maintains that the earth or soil in which they grow has nothing to do with the supplying this food. He makes this inference from the fact that hyacinths grow in water; and to this instance he might have added those of floating water-plants, of most of the *Orchidææ*, and a number of mosses, lichens, &c., which evidently derive their nutriment from sources independent of those constituents of the earth or soil in which they do *not* grow. But this does not at all prove Mr. Newman's position, that those plants which grow in the earth do not derive their sustenance from the soil in which they are placed. The fact is that plants, like animals, require different kinds of food, and they are always naturally placed in those positions in which they are best supplied with their peculiar food. All plants, it may perhaps be stated, require for their growth water and carbonic acid, and they obtain these from the soil or the atmosphere, according to their structure, which is adapted to the peculiar localities in which they live. The plants of the deep sea, and most of the lower forms of *Cryptogamia*, obtain these agents by their whole surface; but in the higher forms of *Phanerogamous* vegetation, the function of absorption is exceedingly localized, and these plants seem to be almost con-

fined to the extremities of their roots — the spongioles, as a means of obtaining food. These spongioles are placed in the soil, and from the soil, and from no other source, do they derive their water and carbonic acid. It is this that makes carbonaceous soils so valuable when any agent is added to them that will facilitate the union of their carbon with oxygen, and thus supply to plants an abundance of carbonic acid. On the necessity of water as a food for plants I need not dwell; and that this alone enters plants from the soil is proved by the flourishing vegetation of a swamp during a drought, compared with the withered aspect of the same on hills and well-drained fields. But water and carbonic acid are by no means the only food of plants; there are other matters which they derive from the soil, and which they cannot get from any other source. The various saline and earthy constituents of plants are derived from the soil; and unless these are supplied the plant perishes. The nature and proportion of these vary very considerably in different families, but in most cases they are essential, if not to the existence, at least to the health and productiveness of the plant. Of these substances the phosphates, nitrates and carbonates of lime, potassa and soda, silica and ammonia, may be given as examples. It is a knowledge of this fact that is now giving such an impetus to the enquiry concerning the manuring of plants, and which, far from leading to the conclusion that the composition of the soil is of little importance, attaches to it the utmost value. For this purpose the vegetable physiologist has called in the aid of the chemist; and Dr. Daubeny, at a late meeting of the Agricultural Society, presented a plan for keeping a debtor and creditor account between the soil and plants that grew on it, seeing that the latter took away that which the former possessed. It is a knowledge of this fact that gives the true theory of the rotation of crops, the necessity for which does not arise from the excretions of a plant being poisonous to itself and not to another, but from the fact that plants abstract from the soil the whole of an ingredient that, as food, is necessary for their health; this is not supplied till after the next manuring. That the earth supplies ingredients necessary to the existence of plants, is also proved by their distribution on the surface of the globe, independent of height, of heat and light, which are so important; some plants grow on one stratum and some on another; and many plants are known to geologists as determining the existence of particular rocks, whose particles are mingled with the soil. I cannot therefore admit that the earth is “simply a receptacle for roots,” for the very constituents of which the earth is composed, are constantly undergoing decomposition and entering into the structure of the plant; and had not the earth naturally or by artificial means a peculiar constitution, the plants which grow on it could not exist.—*Edwin Lankester*; 43, Hart Street, Bloomsbury, May 6, 1842.

158. *Note on Sagina apetala and maritima*. In the numerous examples of *Sagina apetala* which I have witnessed, I have never failed to detect rudimentary petals, (see ‘British Flora’). This obtains also in the maritime variety found in Anglesea, near Beaumaris. *S. maritima* is strictly apetalous. The latter species I have never seen growing at Warrington: the nearest habitat known to me is Runcorn Gap, on the Mersey.—*W. Wilson*; Warrington, May 6, 1842.

159. *Carex tenella*, (Phytol. 128). A word on this subject. I have no doubt that the figure of Schkuhr has been seen by the author of ‘British Flora,’ and I think there is good evidence of its having been consulted at the very time when that part of the ‘British Flora’ was written. The mistake, if any has been made, may even have been caused by relying too implicitly on Schkuhr’s figure of the ripe fruit. This, in Sir J. E. Smith’s opinion, has been taken “from a starved specimen of *C. loliacea*,” which

has "fruit *flat on one side*," ('Eng. Flor.' 83). Mr. Gibson appears to have misconceived the meaning of the question which he so freely criticises; the doubt evidently refers to the Scottish specimen, and not to the *species* called *C. tenella*.—*Id.*

160. *Isoetes lacustris*. Had I known of Mr. Newman's intention to describe the fructification, I would have sent my own recorded observations earlier. In some of the fertile capsules, only one central columnar bar from back to front was visible, but in other cases, and especially in those which seemed to contain male organs, there were ten such bars, ranged on each side of the thickened central line which runs down the back. No good evidence appeared that these bars were receptacles for the seeds. On the inner side of the frond, immediately above the capsule, a rounded membranous scale is observable, having a depression at its base. It has an evident communication with the capsule. In one instance two scales were seen, one placed above the other. The so-called anthers were alike furnished with scales. In the "normal form" from Llyn y Cwn, I observed that the seeds were much more numerous and smoother than in the slender variety from Ffynnon Frech, the capsules were also larger, with twelve bars or pillars from back to front. In the capsule of the slender variety the seeds were from thirty to forty in number, with winged sutures; not the least trace of any pedicel could be found. The above remarks seemed to me less likely to be accurate than those of Mr. Valentine, which, founded as they are on subsequent observation and most diligent scrutiny, must be regarded as worthy of the highest credit. One conclusion drawn by him was, that no essential difference existed between the fertile and the so-called male fructification.—*Id.*

161. *Myrica Gale with androgynous flowers*. I enclose a few specimens of *Myrica Gale* with *androgynous flowers*, that is, with the flowers united in the same glume, not simply monœcious. In the same catkin you will find the lower portion principally occupied with barren flowers, the upper portion with fertile flowers, and the intermediate portion with the flowers united. The whole bush, whence the specimens were obtained, had catkins of this character; it still grows on the borders of Risley Moss, near this place, and can easily be found again.—*Id.*

162. *Notes on Monotropa*. It may not be amiss to make a few more observations on *Monotropa*. The description of the root of *M. Hypopitys* in 'English Botany,' t. 68, is applicable enough to Mr. Lees' plant, but not to that which grows at Southport, and which seems also to differ from the true *M. Hypopitys* in its drooping flowers. With respect to the scent of the true species, it would seem, according to Smith's observation, that it becomes evident only when the plant has "arrived at maturity, and then acquiring a fragrant smell, generally compared to primrose roots, but rather resembling those flowers." My Southport specimens, therefore, though they should not prove to belong to a distinct species, are not necessarily opposed to Mr. Lees' perceptions, for they were gathered early in the season. Perhaps I have erred in not sooner replying to Mr. Lees' observations, (Phytol. 171). My silence has been entirely owing to an aversion from anything which has a tendency to defeat the object for which 'The Phytologist' is intended, as a vehicle of information. The perfect good humour with which Mr. Lees has received my former comments, assures me that I have given no offence, and surely none was intended. No one can be more sensible than myself of the great pains he must have taken in the disinterment of the roots of *Monotropa*; I only intended to say that closer investigation is requisite to determine the parasitism of the plant, than he has yet given to the subject. As to the scent of his specimens, I have as little doubt that I should have agreed with him, as I have of the accuracy of my

own perceptions with respect to the Southport plant. All my remarks were written purely with a wish to excite enquiry into facts not yet fully established by evidence. My friend Dr. J. B. Wood last year directed my attention to some very singular remarks on this plant by Monsieur Jaume St. Hilaire, in the 'Plantes de la France,' iii. (1809). At that period he says the plant was so little understood, that it was difficult to ascertain "whether it was a distinct species or a monstrosity of another plant," (si c'est une espèce distincte, ou une monstruosité d'une autre plante); and that it was always found "adhering and parasitical upon the roots of elms &c., but never [afterwards] in the same spot." So that here we have a plant at once migratory and parasitical, properties which would be very astonishing, thus united, in any but a plant of such mysterious origin.—*Id.*

163. *Note on the second British species of Monotropa.* The smooth-petalled form of *Monotropa Hypopitys* noticed by Mr. Gibson (Phytol. 201) will probably be found in other localities now that attention is directed to it. I have a specimen in my possession from Cholsey, Berks, gathered by Mr. Baber, and distributed by the Botanical Society of London in 1839, which differs from a Reigate specimen of the more usual form, sent to me by the same Society, and agrees with the characters given by Mr. Gibson. The plant or variety has, however, been recognized before by various foreign botanists, and appears to be the same as the *Hypopitys hypophegea* of G. Don, 'General System of Gardening,' iii. 866. It is the *H. glabra* of Decandolle (Prodr. vii. 780), who gives as its habitat the roots of beech-trees in various parts of Germany, and suggests that it may be also found in France and England. A smooth form of *Monotropa Hypopitys* is also mentioned by Koch, in his 'Syn. Flor. Germ. et Helv.' where it is considered as being merely a variety, between which and the hairy form this author finds many intermediate states.—*Robert J. N. Streeten; Worcester, 9th May, 1842.*

164. *Trifolium incarnatum*, (Phytol, 198). The only localities in which I have met with *Trifolium incarnatum* are Snelsmore and Greenham Commons, near Newbury, Berkshire; where, in 1838, it grew on the turf, not far from the road-side, in many parts of the commons, and by an inexperienced botanist, who was not aware of the plant's being cultivated in the neighbourhood, would certainly have been supposed to be wild; indeed, I confess, that when I first saw its deep red flowers, I hoped that I had found a prize. It grew in a scattered manner, and was always very starved and stunted in its growth.—*Anna Worsley; Brislington, May 10, 1842.*

165. *Potamogeton prælongus*. In the 'Northern Flora' by Dr. Alexander Murray, of Aberdeen, published in 1836, occur the following remarks respecting this plant.—It "is one of the most recent additions to the British Flora. It is said, however, that there are specimens of it in the herbarium of Mr. Brodie of Brodie,* 20 or 30 years old; and it is certain that the writer of these remarks, though then unable to determine the name, gathered this species in Cromar, Aberdeenshire, several years before it was known to be a native of Britain, and showed the specimen, still in his possession, upon the same day, as something remarkable, to his friend Mr. John Anderson, now editor of a London daily paper." The readers of 'The Phytologist' are of course aware that since the time at which these words were written, various localities, both in Eng-

* Lochlee is on the Brodie property; but few of the specimens in the Brodie herbarium were gathered within the province of Moray.

land and Scotland, have been discovered for the interesting plant to which they refer. But they are not, perhaps, aware by whose means or in what manner it was first made known that *Potamogeton praelongus* had been found in this country. In the summer of 1832, I found this plant first in the moss of Litie, and soon afterwards in Lochlee, both stations within the county of Nairn. After examining it over and over, and comparing it with the descriptions given in Hooker's 'British Flora,' I could not identify it with any species there described. I at last showed a specimen to my friend, Mr. William A. Stables, of Cawdor Castle, who had not previously seen it, and could not name it. Ever more ready to promote a friend's fame than his own, Mr. Stables in 1833, sent some specimens to Dr. Walker Arnott, who pronounced the plant to be *Potamogeton praelongus* (adding several synonymes), and "new to the British Flora." It is highly probable that it had been, in several instances, mistaken for another species before the time to which I have alluded, but certainly it was not known by any distinct name as a native of Britain until, through the communication of Mr. Stables, it was named by Dr. Arnott. I forget whether it was before or after he knew its name that Mr. S. found the plant growing in Lochindorb. With reference to what I have now written, I may just remark, that I have no wish to depreciate the botanical services of others in order to extol my own, or to take away from the merit—if merit there be—of the mere discovery of a plant previously unknown. But I think that those who do actually make discoveries, knowing or suspecting them to be so, certainly do very little for the cause of botanical science by neglecting to communicate them. And in my honest opinion my excellent friend already named has, with respect to the plant in question, more merit than any who have had a hand in adding it to the British Flora. The description of *P. praelongus* is now so well known, and has been so recently inserted in your pages, (*Phytol.* 28), that it need not be here repeated. There is, however, one peculiarity in the leaves, which I think has not been quite correctly described by our British botanists. By some they are said to be "obtuse," by others "hooded" at the point; and by others, I think, they are not, in that particular, described at all. I would describe them as terminating in what resembles the *bow* of a boat, and I think the "*foliis apice navicularibus*" of the continental botanists—for which expression I am also indebted to Mr. Stables—forms the best possible description of them. When dried and flattened they are of course split at the point. The lamented author of 'The Northern Flora,' who did live to finish what would have formed the most interesting of all our local Floras, assigns, on the authority of Francis Adams, Esq., Surgeon, Banchory, the *feminine* gender to the word *Potamogeton*. In an appendix to Dr. Murray's work, Mr. Adams has furnished 'Notes from the Ancients on certain indigenous species;' and among other things remarks—"Modern botanists have fallen into strange mistakes about the gender of this word. Thus Sprengel, in his 'History of Botany,' makes it masculine; and Hooker, in his 'Flora Scotica,' makes it neuter. Now it so happens that the word is unquestionably feminine in Latin, as is proved from the following passage in the N. H. of Pliny:—"Potamogeton adversatur et crocodilis: itaque secum habent *eam* qui venantur. Castor *hanc* aliter noverat &c." Dr. Murray adds in a note, that "general principles, as well as the authority of Pliny, may be said to be in favour of *Potamogeton* being a feminine word."—*J. B. Brichan; Manse of Banchory, by Aberdeen, May 16, 1842.*

166. *Enquiry respecting Pyrola media.* As it is very important that published lists of plants should be correct, and I feel especially desirous that 'The Phytologist' should become an authority on this point, allow me, through your medium, to ask Mr. Buck-

ley if he is quite sure he gathered at Lytham in July last, *Pyrola media*, which he includes in his list of Lytham plants, (Phytol. 165). I ask this because whilst I gathered *Pyrola rotundifolia* in that locality in July, 1834, and have since received it from the same place, I have never seen, nor before heard of, *Pyrola media* growing there. *Pyrola rotundifolia* is also abundant at Southport, on the opposite shore of the Ribble, in similar situations.—*Samuel Simpson ; Lancaster, May 17, 1842.*

167. *Chrysosplenium alternifolium*. I may mention that *Chrysosplenium alternifolium* grows along the banks of a narrow rivulet in the immediate neighbourhood of this town, in very great abundance and luxuriance, forming in some parts large patches, and entirely eclipsing its more humble, and there, less abundant sister—*Chrysosplenium oppositifolium*.—*Id.*

168. *Note on the Oxlips from Bardfield*. I have, by the kindness of Mr. H. Doubleday, been furnished with specimens of the oxlip (*Primula elatior*) from Bardfield, (Phytol. 204), which I believe to be quite distinct from the plant usually called by that name. The leaf is very differently formed, the tube of the corolla much longer, the flowers *always drooping*, and the general appearance of the plant is altogether different.—*Joseph Sidebotham ; 26, York St., Manchester, May 20, 1842.*

169. *The valuable Botanical Museum of the late Aylmer Bourke Lambert, Esq.* is advertized for sale by Mr. S. Leigh Sotheby. This collection has been in course of formation for more than half a century. It comprises about one hundred separate and distinct herbaria; the largest carpological collection perhaps ever made by a private botanist, the fruits are dry or preserved in spirits and acids; and a collection of woods and sections of barks, &c. The sale will take place at Mr. Lambert's late residence, 26, lower Grosvenor St.; it will commence on the 27th of June, and will continue for three days.

170. *Erratum*. Phytol. 194, under *Bonnemaisonia asparagoides* and *Polysiphonia cristata*, for *Mr. Carnow* read *Mr. Curnow*.

ART. LXX.—*Proceedings of Societies.*

LINNEAN SOCIETY.

April 19, 1842.—Edward Forster, Esq., V.P., in the chair. A bequest of £100. from the late Archibald Menzies, Esq., was announced. Joseph Janson, Esq., exhibited specimens of *Primula scotica*, gathered at Wick, near Caithness.

May 4.—The Bishop of Norwich, President, in the chair. The Rev. C. A. Johns exhibited a living specimen of *Jungermannia reptans*, in fruit; as well as dried specimens of many other species of the same family. The Duke of Northumberland sent for exhibition the ripe fruit, and a female plant in flower, of *Diospyros edulis*, which had grown in His Grace's conservatory at Sion. Read, the continuation of Dr. Hamilton's Commentary on the Hortus malabaricus.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, May 12, 1842.—Professor Christison in the chair. Miss Jane Farquharson was elected a life member of the Society. Donations to the library and museum

were announced from the President, Rev. Mr. Hincks, Mr. Ward, Mr. Isaac Brown, Mr. Joseph Dickson, Mr. Sowerby, Mr. Stricker and Mr. Watson.

The following communications were read :—

1. *On Funaria parviflora, as a native of England* : by Mr. C. C. Babington, M.A. F.L.S., &c., Cambridge. Mr. Babington, in reference to an opinion formerly expressed by him, that this species was a very doubtful native of England, not having then seen any specimens agreeing with the true characters of it, now states that he has obtained satisfactory proofs of its being a native, but that most botanists have been in the habit of calling *F. Vaillantii* by that name. He says, however, that the flowers of English specimens of *F. Vaillantii* are decidedly smaller than those of some which he possesses from Montpellier, and that in some white-flowered English specimens of the same plant, he perceives traces of an apiculus ;—also that in French specimens of *F. parviflora* the flowers are of the same size as those of *F. Vaillantii*, but the fruit has an apiculus. Mr. Babington then proceeds to give a minute description of the principal characters which distinguish this and other allied species of the genus, and among which there has hitherto been much confusion.

2. *On the occurrence of Gelidium rostratum*, Harv., at Aberdeen : by Mr. George Dickie, Lecturer on Botany, Aberdeen.* This remarkable plant, which Mr. Turner was disposed to consider, though with some hesitation, as merely a variety of *Delesseria alata*, but which Dr. Arnott and Mrs. Griffiths refer to *Gelidium*, Mr. Dickie states to be abundant at Aberdeen, though it has not hitherto been found *in situ*. It occurs on the large stems of *Laminaria digitata*, and appears to be an inhabitant of deep water—being only found cast up after storms. Mr. Dickie says,—"after comparing numerous fresh specimens of *G. rostratum* and *D. alata*, I feel convinced that there is no essential difference in the structure and outward form of the fruit in these plants. In both the ternate granules are terminal and axillary, and the capsules occupy the same position. The seeds, however, differ in form ; those of *D. alata* are mostly oval, in the other they are spherical."

3. *On some anomalies in form in Scolopendrium vulgare* : by Mr. Joseph Dickson. The fronds exhibited by Mr. Dickson presented every possible variety of shape, from lanceolate to reniform, and from entire to lobed or rather digitate. The more usual form is certainly entire and *oblongo-lanceolate*, and it is difficult to account for the freaks of form which not unfrequently occur in this species of fern.

After these papers were read Professor Graham exhibited some very beautiful and interesting specimens of exotics from his own green-house. — *The Edinburgh Evening Post and Scottish Standard*, Saturday, May 21, 1842.

BOTANICAL SOCIETY OF LONDON.

April 18, 1842. — Dr. W. H. Willshire in the chair. Various donations to the library and herbarium were announced and members elected.

Mr. Edward Doubleday exhibited a *Primula* found at Bardfield, Essex ; and stated that some few years ago his brother, Mr. Henry Doubleday, observed that the oxlips growing near Bardfield, in Essex, were strikingly different from those found in the vicinity of Epping, where the oxlip is not common ; and that further observation had induced him to believe that the Bardfield plant was a distinct species, an opinion in

* See note by Mrs. Griffiths, Phytol. 203.

which he (Mr. E. D.) was disposed to concur. Mr. Doubleday next referred to an article in the 'Gardeners' Chronicle,' since republished in 'The Phytologist,' (Phytol. 204), and pointed out the resemblance of the Bardfield plant to the one there alluded to. He expressed his opinion very decidedly that there were in England three distinct species of *Primula*, known by the names of primrose, cowslip or pagel, and oxlip, but that the oxlip commonly so called is nothing more than a hybrid between the primrose and cowslip. This hybrid is extensively distributed over the country, especially in localities where the primrose and cowslip abound: it constantly exhibits a tendency to revert to the primrose by throwing up single flowers of precisely the primrose character, as well as others possessing characters of its other parent the oxlip.

As a natural consequence such a hybrid would reproduce at times both the parent species, a fact Mr. Doubleday believes to be fully proved.

The Bardfield plant, which Mr. Doubleday considers the true oxlip, differs from the hybrid in the form of the calyx, in its drooping umbel, and in its leaves dying off in autumn: he has examined thousands of plants at and near Bardfield, and never observed a single instance of a solitary flower being thrown up as in the hybrid. The primrose does not occur for some miles round Bardfield, though the cowslip is abundant; therefore hybridization cannot well take place in that locality. The plant under cultivation does not change its character. Should it prove a distinct species Mr. Doubleday claimed for his brother the credit of first detecting the distinction.

May 6.—J. E. Gray, Esq., F.R.S. &c. President, in the chair. The following specimens were exhibited:—*Dicranum spurium*, Hedw., collected in Stockton forest, near York, in March last, by Mr. Spruce, presented by him. *Leskea pulvinata*, Wahl., collected on willows by the Ouse near York, by the same gentleman, and presented by him. *Desmidium Swartzii* and *D. mucosum*, collected near Penzance in December last, by Mr. Ralfs, and presented by him. The following were presented by Mr. Wm. Gourlie, jun.—*Jungermannia stellulifera*, Taylor, collected at Crich, Derbyshire, by Mr. W. Wilson; *Gymnostomum Hornschuchianum*, Arnott, collected at Cromaglow, in July, 1840, and first discovered by Dr. Taylor; *Jungermannia voluta*, Taylor, found at Gortagonee in March, 1841, by Dr. Taylor. Mr. J. G. Lyon presented specimens of *Jungermannia Lyoni*, Taylor, collected at Dunoon, Argyleshire. Mr. T. Sansom exhibited specimens of the following mosses collected by the Rev. C. A. Johns, F.L.S.:—*Bryum Tozeri*, Grev., collected at Swanscombe, Kent;* *Hypnum catenulatum*, Schwæg. from Betsham, Kent; *Tetraphis pellucida*, Hedw., Abbey Wood, Erith, Kent. British plants had been received from Dr. Francis Douglas, Dr. Spencer Thomson, the Rev. W. S. Hore, Mr. W. Wilson, Mr. M. Moggridge, and Mr. Fordham; and donations to the library were announced from Dr. Willshire, Mr. H. O. Stephens and Mr. Adam White.

Dr. Spencer Thomson communicated a paper "On the Anatomy and Physiology of the Seed of *Phaseolus vulgaris*." The paper was accompanied with drawings.—*G. E. D.*

* See note by the Rev. Mr. Johns, Phytol. 200.

THE PHYTOLOGIST.

No. XIV.

JULY, MDCCCXLII.

PRICE 1s.

ART. LXXI.—*Analytical Notice of the 'Transactions of the Linnean Society of London,' vol. xviii. pt. 4. August, 1841.*

(Concluded from p. 72).

ART. XXXIII.—*A Monograph of the Genus Disporum.* By DAVID DON, Esq., Libr. L.S., Prof. Bot. King's Coll. Lond.

THE name of this genus, unaccompanied by a description, first appeared in Mr. Salisbury's list of Petaloid Monocotyledons, published in the first volume of the Horticultural Society's Transactions. The chief characters of the genus were pointed out by Mr. Brown, "and among others its binary ovula, which doubtless suggested to Salisbury the name of *Disporum*." No description of the genus appeared until the publication of Mr. Don's '*Prodromus Floræ Nepalensis*,' in 1824, where, to Salisbury's single species—*Disp. pullum* (misprinted *fulvum* in the *Prodromus*, as well as in the report of the present paper in the '*Proceedings of the Linnean Society*,' p. 45), two others are added, namely, *Disp. Pitsutum* * and *Disp. parviflorum*.†

"The characters of the genus consist in its campanulate perianthium, with the sepals produced into a short pouch or spur at the base, in the cells of its ovarium bearing two [ascending] ovula, in its baccate pericarpium, and in its umbellate inflorescence. These distinctions will be found to be common to all the Asiatic species hitherto improperly referred by most botanists to *Uvularia*. * * This genus terminates the series of the *Melanthaceæ*, forming the transition from that family to the *Smilacææ*, the chain of connexion between them being rendered complete by the intervention of a new genus, of which *Streptopus lanuginosus* is the type."—p. 513.

The normal *Melanthaceæ*, principally North American plants, have the floral organs "persistent, and the partial decomposition of the trimerous pericarpium is almost universal." From the author's remarks on the three groups into which "the *Melanthaceæ* appear naturally to divide themselves," we extract the following characters.

* The *Uvularia Pitsutu* of Buchanan Hamilton, MSS.; *Uv. umbellata*, Wallich, '*Asiatic Researches*,' xiii. 379, Wal. Catalogue, No. 5090; *Streptopus peduncularis*, Smith, Rees' '*Cyclopædia*,' under *Uvularia*.

† *Uvularia parviflora*, Wallich, '*Asiatic Researches*,' xiii. 379.

1. *Melanthææ* or *Veratrææ*. Carpels partially concrete; pericarp capsular; dehiscence generally septical; flowers frequently unisexual; perianth less coloured, persistent; stamens persistent; rhizoma fibrous. British genus, *Tofieldia*.
2. *Colchicææ*. Perianth more highly developed; sepals with long claws, often combined into a tube; styles long; carpels concrete; pericarp capsular, dehiscence septical; rhizoma bulbous; floral axis naked, hypogæous. British genus, *Colchicum*.
3. *Anguillarææ*. Floral organs frequently deciduous; styles short, as in the first group; carpels completely concrete; pericarp capsular or baccate, dehiscence loculicidal; rhizoma bulbous or fibrous; axis leafy.

“The genus *Colchicum* establishes an evident relationship through *Sternbergia* and *Crocus* between *Melanthaceæ*, *Amaryllidææ*, and *Iridææ*. The present genus connects the family with *Smilacææ*, and *Tofieldia* as clearly with *Junceææ*, whilst a comparison of the structure of *Uvularia* and *Erythronium* fully makes out their affinity with *Liliacææ* or *Tulipacææ*. * * The class of Monocotyledonous plants offers a beautiful confirmation of the truth of the doctrine of the continuity of the series of organized beings; and however much the universal existence of transition or osculant genera in this class may perplex the botanist who looks to the technical definition of his groups as the highest object of the science, we are not to exclude such genera from our researches merely because their presence renders the circumscription of our pretended natural orders more difficult, for they certainly form the most interesting part of the study of natural affinities.”—p. 514.

Eight species, natives of Asia, are fully described in this Monograph; and the paper is concluded by a description of Reichenbach's closely allied genus *Kreysigia*. The species—*Kreys. multiflora*, is a native of New Holland, and was discovered by Mr. Allan Cunningham, who introduced it in 1823 to the Royal Botanic Garden, Kew, where it annually flowers and matures its fruit. It was at first supposed to be a species of *Schelhammera*, but on examination was found to differ essentially both from that genus and *Disporum*.

“This genus is essentially distinguished from *Schelhammera* by its sessile biapendiculate sepals; by the stamens proceeding free from the torus, unconnected with the sepals; by the cells of its ovarium bearing only two ovula; by its somewhat baccate pericarpium; and, lastly, by its axillary peduncles, which are furnished with three small verticillate bracts. The presence of appendages, the spreading sepals, free stamens, strophilate seeds, minute embryo, axillary inflorescence, and valvular fruit remove it equally from *Disporum*.”—p. 523.

The attention of the author was drawn to the appendages at the base of the sepals, resembling those of *Parnassia*, by Mr. John Smith of Kew; Mr. Don, as well as Endlicher, at first supposed them to be imperfectly developed stamens, but Mr. Brown having pointed out “the intimate connexion of these curious appendages with the sepals, and the entire absence from them of vascularity,” the author here corrects the error into which he had previously fallen.

ART. XXXIV.—*A Monograph of Streptopus, with the Description of a new Genus now first separated from it.* By DAVID DON, Esq., Libr. L.S., Prof. Bot. King's Coll. Lond.

“The genus *Streptopus* was first proposed by the elder Richard in Michaux's ‘*Flora Boreali-Americana*,’ and was intended to include not only the *Uvularia amplexifolia* of Linnæus, but two other plants therein described for the first time, namely, *S. roseus* and *lanuginosus*. The two last are exclusively confined to North America, while the first is common to Europe and America.”—p. 525.

In *Streptopus amplexifolius*, which Mr. Don considers as the type of the genus, are united the following characters:—a six-leaved campanulate perianth with deciduous sepals, which have “a nectariferous furrow at their base; erect sagittate anthers, with short dilated filaments; three separate stigmata;” and a berry-like pericarp with polyspermous cells. From the genus thus characterized the author has found it necessary to remove *Strept. lanuginosus*, on which he founds a new genus. The genus *Streptopus* still comprises three species,—*Str. amplexifolius*, *roseus*, and *simplex*: the last species is from the Himalayas, and was first described by the author in his ‘*Prodromus Floræ Nepalensis*.’

“These plants have all a peculiar habit, cylindrical leafy stems, broad amplexicaul leaves, glaucous beneath, and axillary, solitary, mostly single-flowered peduncles, which in *amplexifolius* are curiously twisted at their middle. The genus undoubtedly belongs to the *Smilacæ*, and is nearly allied to *Convallaria* and *Smilacina*, but is essentially distinguished from both by its distinct sepals, each furnished with a nectariferous furrow, separate stigmas, and polyspermous berry. With *Uvularia* it accords in habit, and in its solitary, axillary, campanulate flowers; but its innate anthers, furnished with short filaments, baccate pericarpium, and noncarunculate seeds, remove it widely from that genus.”—p. 526.

Of the new genus, *Prosartes*, the author observes:—

“This very natural genus, as I have already stated, forms the transition from the *Smilacæ* to the *Melanthacæ*, and possesses several characters in common with *Streptopus* and *Disporum*. From the former genus it is essentially distinguished by its much more lengthened filaments, binary pendulous ovula, and terminal umbellate inflorescence; [and it differs from *Disporum*] in its innate anthers, nearly concrete styles, and pendulous seeds.”—p. 531.

The genus *Prosartes* includes two species,—*Pros. lanuginosa*, from North America, the *Streptopus lanuginosus* of Michaux; and *Pros. Menziesii*, also from North America, named after the late Mr. Menzies, and now first described.

“In the Smithian Herbarium there is a single specimen of this highly interesting plant gathered by my venerable friend Mr. Menzies on the north-west coast of America in the voyage of discovery under Vancouver, to which he was attached in the ca-

capacity of naturalist. It bears a close resemblance to some species of *Disporum*; and it moreover agrees with that genus in its sepals being produced into a pouch at their base. The flowers, which are also terminal and in pairs, are twice the size of those of the preceding, and the style is copiously hairy."—p. 534.

From their position in the natural system, and the author's remarks on their affinities, it will be evident that the plants described in the papers above noticed bear a close relationship to many interesting British genera, including *Trichonema*, *Convallaria*, *Ruscus*, *Paris*, *Tofieldia*, *Narthecium*, &c.

ART. XXXV.—*On some new Brazilian Plants allied to the Natural Order Burmanniaceæ.* By JOHN MIERS, Esq., F.L.S.

VON MARTIUS, in his '*Nova Genera et Species Plantarum Brasiliensium*,' gives the characters of the genus *Burmannia*, and fully describes five species, discovered by him in the interior provinces of Brazil. Michaux gave the generic name of *Tripterella* to two North American species, which Mr. Miers appears to consider as not distinct from *Burmannia*. Seven other species have also been found in Africa, India, and New Holland. Previously to his departure from Brazil the author discovered five new plants, closely allied to *Burmannia*, but differing from that genus in many important particulars. These five species, together with another discovered by Mr. Schomburgk in British Guinea, and Nuttall's *Apteria setacea*, are divided into three genera, namely, *Dictyostega*, containing four species, *Cymbocarpa* with one, and *Apteria*, *Nuttall*, (formerly *Stemoptera*, *Miers*) with two species. All these genera and species are fully described in the present paper, and their characters minutely illustrated by figures.

The author observes that the *Burmanniaceæ* may be divided into two groups. The first will contain the genera *Burmannia* and *Gonyanthes*, having a trilocular ovary and central placentation; the second, possessing a unilocular ovary and parietal placentation, will include *Dictyostega*, *Cymbocarpa*, *Apteria* and *Gymnosiphon*. If the principle be adopted "on which *Apostasiæ* have been separated from *Orchideæ* and *Xyrideæ* from *Restiaceæ*," the two sections must be kept distinct, and the author suggests that the second would, in that case, form a separate family, under the name of *Apteriaceæ*; if however the difference in the structure of their ovaria be not thought sufficient to warrant their separation, they must remain associated as *Burmanniaceæ*, the first section being named *Burmanniæ*, the second *Apteriæ*. The author mentions *Gentianeæ* as an order presenting many similar

instances of transition from a unilocular capsule and parietal placentation to a bilocular fruit and central placentation.

The author next details some very striking points of resemblance between these plants and many Orchideæ; particularly in their seeds and the structure and texture of the pericarp, as well as in their stem and imperfectly developed leaves: and he observes that but for the differences in the stamens and stigmata, "it would be difficult to draw a line of distinction between the structure of these plants and that of Orchideæ."

"Another analogous fact is deserving of notice: on examining the stigma of *Dictyostegia* after flowering, it will be found to be crowded with bundles of white cottony filaments, which may be seen even with a common lens to consist of pollen-tubes issuing in a body from the cells of the anthers and penetrating the stigma, leaving their ends exerted, and clavately terminated by their respective grains, thus displaying in a very beautiful manner the singular mode of fecundation so ably illustrated by Mr. Brown in his admirable paper on that subject, published in the 16th volume of the Transactions of this Society. The pollen also in its texture presents great resemblance to that of the Orchideæ, its component granules cohering in like manner into a solid waxy mass previous to the dehiscence of the anthers."—p. 551.

ART. XXXVI. — *Some Account of the Curata, a Grass of the Tribe of Bambuseæ, of the Culm of which the Indians of Guiana prepare their Sarbacans or Blow-pipes.* By ROBERT H. SCHOMBURGK, Esq. Communicated by the Secretary.

DURING his first expedition in Guiana M. Schomburgk discovered the plant from which the Indians prepare their deadly arrow-poison, (Phytol. 47). This discovery rendered our enterprising traveller the more anxious to identify the plant from which are obtained the reeds used in the manufacture of the Indian blowpipes. Nearly forty years had elapsed since Baron Humboldt saw a canoe nearly filled with them, and was led to ask the question—"What is the Monocotyledonous plant that furnishes these admirable reeds?" and during that period botanists had received no further information relative to the plant or its place of growth.

"No wonder, therefore," says M. Schomburgk, "that next to the plant which furnishes the active principle of the famous Urari or Wurali poison, the discovery of the reed by means of which the Indian is enabled to send his poisoned arrow with so much precision into his intended victim, should have been a point of the greatest interest to me.

"But in answer to all my questions to the Indians as to the locality from whence they procured the reeds that play such an important part in the construction of the blowpipe, they merely pointed to the west, and gave me to understand that it was far away. The value which the Indians of Guiana set upon these reeds, and the uncertainty from whence they came, increased their interest; and one of my first ques-

tions on arriving at a settlement of Indians which I had not previously visited, was, whether they knew from whence were obtained these reeds, so different in structure from all known *Bambusæ*. I ascertained at last that the *Macusis* received them from the *Arecunas*, but that they did not grow in the country of that tribe; on the contrary, the *Arecunas* undertook journeys of several months duration to procure them from another tribe, who lived still further westward."—p. 557.

M. Schomburgk, in his third expedition, visited the *Arecunas*, and from them he ascertained "that the plant which produced the reeds grew in the country of the *Guinau* and *Maiongcong* Indians, near the head-waters of the *Oronoco*."

"We saw among the *Arecunas* a large number of these reeds, which they were manufacturing into blowpipes. The reed being so valuable, and so liable to destruction if carried openly through the woods, the Indian puts it for protection into the slender trunk of a palm (a species of *Kunthia*?), which he simply hollows out for the purpose. Being aware that the tube thus manufactured is in constant demand by the other tribes, he does not leave the regions which he inhabits to offer his ware for sale, but patiently awaits the visits of the *Macusi*, skilled in manufacturing the *Urari* poison, who brings him that deadly preparation, and exchanges it against these reeds or the ready-finished blowpipe. By this mutual exchange, they are each rendered masters of life and death over the feathered game; for, armed with his blowpipe, the wily huntsman gradually steals nearer and nearer to his victim, and launches his weapon of death, which seldom fails of its deadly aim, before the unconscious bird is even aware of the approaching danger.

"The great object of my last expedition led me to that far west. We camped on the 26th of January near the river *Emakuni*, at a settlement inhabited by *Maiongcong* Indians; and the first object which struck me on entering the miserable hut which served as a dwelling to the Indians, was a large bundle of these reeds, some of which were sixteen feet long; a circumstance which naturally induced the inquiry, from whence they came. The houses being built on elevated ground, we had an extensive view before us: at the distance of twenty miles we observed a large chain of mountains, which trended N.N.E. and S.S.W.; and among this chain a high mountain was pointed out to us, which they called *Mashiatti*, and where we were told that these reeds were growing; but as we were given to understand that we should find them likewise at *Marawacca*, and as *Mashiatta* was entirely out of our road, we did not visit it. It was consequently only in the middle of February, and after we had crossed the river *Parima*, that my wish of becoming acquainted with that curious plant was accomplished.

"The *Maiongcong* and *Guinau* Indians, whom the Spaniards call *Maquiritares*, conducted us to that part of *Marawacca* (a high mountain which terminates in an almost perpendicular wall of sandstone) where the plant grows. It is a day's journey from a *Maiongcong* settlement on the river *Cuyaca*, from whence the hospitable and good-natured savages showed us the beaten track. After having ascended Mount *Marawacca*, to about 3500 feet above the Indian village, the traveller follows a small mountain-stream, on the banks of which the *Curas* or *Curatas*, as the Indians call these reeds, grow in dense tufts. They form generally clusters of from fifty to one hundred, which are pushed forth, as in many other species of that tribe, by a strong, jointed, subterranean rootstock. The stem rises straight from the rhizoma, without a

knot, and of equal thickness, frequently to a height of sixteen feet, where the first dissepiment stretches across the inside, and the first branchlets are formed. The articulations then continue at regular intervals of about fifteen or eighteen inches to a further height of from forty to fifty feet. The full-grown stem is at the base an inch and a half in diameter, or nearly five inches in circumference. It is of a bright green, perfectly smooth, and hollow inside."—p. 557.

The long jointless stem Mr. Schomburgk considers to be the growth of a very short period; it is surmounted by a head of numerous verticillate, slender, leafy, jointed branches, three or four feet long, which spring from the nodes of the articulated portion of the stem; the whole being terminated by the inflorescence.

"The whole stem is from fifty to sixty feet high; but the weight of the numerous branchlets forces the slender stem to droop, and the upper part describes an arch, which adds greatly to its graceful appearance."—p. 560.

The *Curata* (its native name) grows in a rich soil and shady situation, about 6000 feet above the level of the sea. It appears to be restricted in its range to the chain of sandstone mountains extending between the second and fourth parallel, and forming the separation of waters between the rivers Parima, Merewari, Ventuari, Orinoco and Negro: M. Schomburgk determined only three localities, — Mounts Mashiatti, Marawacca and Wanaya.

"It is a remarkable circumstance, that the plant which furnishes the chief ingredient for the preparation of the Urari poison is likewise peculiar to a few mountainous tracts; consequently the tribes who inhabit the regions where these plants grow, and who are acquainted with the mode of their preparation, acquire a general importance."—p. 560.

The Indians who inhabit the district where these reeds grow, are called *Curata*-people by the other tribes, a circumstance indicative of the rarity of the plant. The Indians of the Rio Negro and the Amazon, who have no intercourse with the *Curata*-people, manufacture their blow-pipes out of a slender palm, the stem of which is hollowed out, either by being steeped in water for some days, when the internal substance is pushed out with a stick, or else the stem is split along its length, and the interior is removed by burning; when the inside has been polished, the two parts are accurately joined together by an indigenous glue, and a wooden mouth-piece is added.

The constant demand for a plant having so limited a range, would be likely soon to exhaust the stock, were it not for the numerous shoots from a single rootstock and their rapid growth, combined with the great care taken of his blowpipe by the Indian. Carrying it erect he winds his way through thickets which would be almost impenetra-

ble to the unincumbered European, without injuring his weapon. It is said by Humboldt that "a hunter preserves the same sarbacan during his whole life," and boasts of its precision and lightness as we do of the good qualities of our fire-arms.

The young reeds only are used in the manufacture of the blowpipe; these are cut into the proper lengths, turned slowly over a moderate coal fire to prevent their warping, exposed to the sun until they have acquired a deep yellow colour, and are then encased for protection in the trunk of a slender palm. "This case is called by the Macusi Indians Yúrua-Cura-pong."

Mr. J. J. Bennett has determined this reed to be a distinct species of *Arundinaria*, near to the *Arund. verticillata* of Nees von Esenbeck and Kunth; he has named it *Schomburgkii*, and gives the following characters.

Arundinaria Schomburgkii. Leaves linear, acuminate, smooth; mouth of the sheaths bristly on each side: spike simple, few-flowered; spikelets sessile; hypogynous scales lanceolate, acute.

ART. XXXVII. — *On Cuscuta epilinum and halophyta*. By CHARLES C. BABINGTON, Esq., M.A., F.L.S., F.G.S., &c.

IN a paper 'On the Structure of *Cuscuta europæa*,' (Linn. Trans. xviii. 213), Mr. Babington confirms the accuracy of Mr. Brown's observations, on the existence of scales in the tube of the corolla of that species, in opposition to Sir J. E. Smith's opinion, that its flowers are, "in all the British specimens, as well as in Ehrhart's German ones, destitute of scales in the throat of the tube," ('English Flora,' ii. 25). Mr. Babington, on examining fresh specimens of *Cuscuta europæa* from Sompting, in Sussex, gathered in company with Mr. Borrer, found the scales lying quite close to the corolla, being perfectly transparent and very minute; and these circumstances would seem to account for their having been overlooked by Smith and Hooker, as well as by some of the continental botanists. Mr. Babington remarks:—

"They are, indeed, so difficult of detection as not to have been at first noticed by Mr. Borrer and myself, even when examining fresh specimens, and it is scarcely possible to discover them in flowers that have been dried."—p. 213.

Reichenbach, in his 'Icones Plantarum,' pl. v. fig. 690, represents "each scale exactly under its corresponding stamen,"* yet at p. 62 of the same volume he calls the corolla a calyx, and appears to have

* See our fig. 2, which, with the other figures are copied from the Linn. Trans.

looked upon the scales as constituting the true corolla, and as alternating with the stamens:—

“This view is manifestly incorrect, for the scales constitute a complete internal whorl, each of them being connected with its neighbour so as to form a short tube, the upper edge of which is always free and distinct from the corolla (calyx of Reich.), and the lower parts of the filaments of the stamens may be traced under the cuticle of the corolla, descending exactly behind the centre of each scale. It is perfectly clear, therefore, that the scales cannot represent petals, since the whorl of stamens is invariably found within that of petals, but in this plant the stamens are situated further from the axis of the flower than the so-called corolla.

“I do not attempt to form any theory concerning these minute organs, but hope that some fortunate botanist will soon discover them in such a state of monstrous development as to show what is their real nature.

“That the number of scales is equal to that of the segments of the corolla is proved by their structure in *C. epithymum*, in which plant they are not even divided into two lobes, [fig. 3]. There is not, indeed, the slightest trace of a division to be discovered with a very high power of the microscope. I ought to add, that Reichenbach does not continue the above theory in his ‘*Flora Excursoria*,’ but reverts to the old nomenclature.”—214.

Referring to Reichenbach’s figure of the opened flower of *Cuscuta europæa* (Ic. Pl. v. f. 690, B., our fig. 2) Mr. Babington makes the following observations, which we particularly recommend to the notice of our readers.

“It will be seen that this last differs materially from my fig. 1. May not his plant be a distinct species characterized by its constantly 4-cleft corolla and palmate sexfid scales? This genus is well deserving of attention from British botanists, for several other species are known in Germany, Sweden, and France, which most probably exist in these islands.”—p. 215.

Since the publication of the paper from which the above extracts are made, Mr. Babington has examined *Cuscuta epilinum* and *halophyta*, and in both these species he has detected the presence of scales. His observations are contained in the paper the title of which is given above.

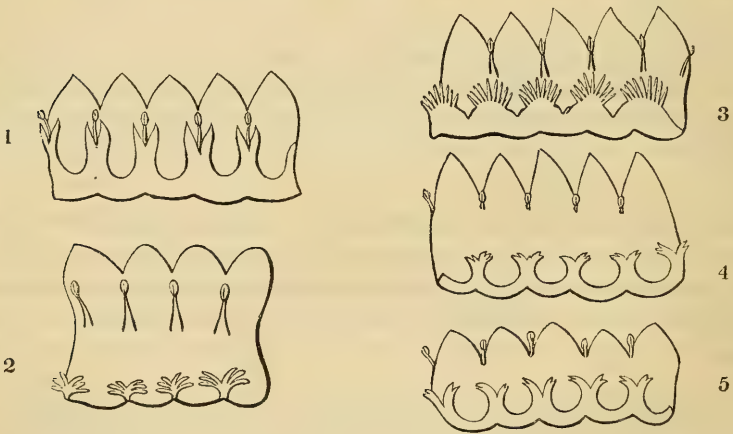
“In the first of these plants, *Cuscuta epilinum*, *Weihe*, we find a ventricose tube furnished with a whorl of adpressed bifid scales, each branch of which is usually divided in a rather irregular manner into two or three fingerlike points, as I have endeavoured roughly to represent in fig. 1, [our fig. 4]; the divisions of the corolla terminate in acute points, and the stamens have very short filaments and are inserted much higher up than the extremity of the scales.

“In Reichenbach’s figure of this plant in his ‘*Icones Plant.*’ tab. 693, the scales are very incorrectly given, each of them being there represented as two minute, separate, roundish bodies, pointing downwards. Specimens received from him (No. 19 of his *Fl. Germ. exsic.*), gathered near Borna, in the neighbourhood of Chemnitz, by M.

Weicker, have however these parts of exactly the form described above, and agree in all points with the English plant, with the exception of the want of a bractea under each bunch of flowers. It is however possible, from the manner in which this bractea is hidden by the flowers in the English plant, that it may also exist in that found in Germany, although the employment of its absence as a part of the specific character, is strongly opposed to this supposition."—p. 563.

The next species, *Cuscuta halophyta*, has not, we believe, been detected in this country. It was recently discovered on the southern coast of Norway, growing on succulent saline plants; and was first described by Fries, in his 'Novitium Fl. Suec. Mantissa prima,' p. 8. Fries does not mention the scales; but Mr. Babington has found them in a specimen gathered by Dr. Blytt "on the coast of the Fiörd, near Christiana," who gave it to Mr. Bowman, from whom Mr. Babington received it.

The following illustrations exhibit the corolla of each species laid open, in order to show the form of the scales, and their position with respect to the stamina; they are copied from Mr. Babington's figures in the two papers under notice: from which source are also derived the characters of the four species, and the description of *Cuscuta epilinum*.



1. *Cuscuta europæa*, Linn. (Sp. Pl. 180). "Clusters of flowers bracteated," sessile: scales bifid, erect, adpressed to the tube of the corolla; tube cylindrical when in flower, ventricose in fruit: calyx much shorter than the corolla. (Fig. 1).

Reichenbach's figure of the opened corolla is shown at fig. 2.

2. *Cuscuta epithymum*, Sm. (Eng. Bot. p. 378). "Clusters of flowers bracteated," sessile; scales palmately cut, connivent; tube of the corolla cylindrical, limb campanulate: calyx much shorter than the corolla. (Fig. 3.)

3. *Cuscuta epilinum*, Weihe, (in Boenningh. Prod. Fl. Monast. 75). Clusters of flowers bracteated, sessile; scales palmately somewhat six-cleft, adpressed to the tube of the corolla; tube always ventricose; segments of the calyx fleshy, deltoid at the base, scarcely shorter than the corolla. *Segments of the corolla acute.* (Fig. 4).

"Segments of the calyx 5, ovate, attenuated above into an acute point, very fleshy, with peculiarly large cells; some of them often so much thickened as to become deltoid. Tube of the corolla $1\frac{1}{2}$ times as long as the limb, slightly inflated, the lobes triangular, acute; stamens inserted very near to the summit of the tube; filaments short; anthers cordate; the limb of the corolla is often very fleshy. Scales bifid, each lobe either entire or 2- or 3-fid, short. Styles 2, short, bent round each other. Bractes not always present, broadly ovate, obtuse, with a minute point, often purplish. Flowers whitish yellow, sometimes tinged with pink. Anthers bright yellow."—p. 565.

Found on flax in many parts of Britain, but most probably not indigenous. Mr. Babington observes that flax raised from American, and, he believes, Riga seed, are free from this parasite; but that it is "introduced with flax-seed from Odessa, and other ports of Southern Russia."

4. *Cuscuta halophyta*, Fries, (Nov. Fl. Succ. Mantis. p. 8). "Clusters of flowers somewhat bracteated," sessile; scales bifid, the segments also bifid, adpressed to the ventricose tube of the corolla: calyx much shorter than the tube of the corolla.—*Segments of the corolla ovate, obtuse. Segments of the calyx obtuse. Styles 2. "I have seen most of the clusters of flowers bracteated,"* Fries. (Fig. 5).

A Norwegian species, not yet detected in Britain.

ART. XXXVIII.—*On the Reproductive Organs of Equisetum.* By Mr. JOSEPH HENDERSON. Communicated by the Rev. M. J. BERKELEY, M.A. F.L.S.

THE results of Mr. Henderson's observations on the reproductive organs of this genus, differ, in some respects, from those arrived at by Treviranus, Meyen, Bischoff and Mohl, by whom, without his being aware of the fact at the time he wrote, he has been in part anticipated. Mr. Henderson well remarks that:—

"There is no part of the structure of *Equisetum* more curious or more anomalous than the organs of reproduction; and although the position of the order in the natural system depends on the nature of these organs, yet this is so far matter of doubt, that very eminent botanists do not seem decided as to whether *Equisetaceæ* are to rank among *Phænogamic* or *Cryptogamic* plants."—p. 567.

Without however entering into this question here, we must content ourselves with giving, by way of introduction, a brief description of the fructification of the genus, which will render the subsequent analysis more clear and satisfactory.

The reproductive organs of *Equisetum* are borne in terminal cone-

like catkins, which are composed of a number of angular peltate scales, spirally arranged round a central common stalk or axis, to which each is attached by a short pedicel. Seated round the margin of each of these scales, on its inner or under surface, are from four to eight oblong membranous cells or thecæ, opening inwardly and longitudinally, and discharging numerous somewhat globose sporules, to each of which are attached, at one point, four spiral filaments; the filaments are dilated at the extremity, and they are generally more or less studded with small granules. Hedwig and other observers have described these filaments as stamens, looking upon their dilated extremities as the anthers, and supposing the minute granules to be the pollen. The filaments are at first wound spirally round the sporules, but when discharged from the theca suddenly unroll themselves, and cause the sporules to leap about as if alive. The curious motions of the sporules are owing to the structure of the filaments, which are excellent hygrometers, being twisted like the awns of *Avena fatua* or animated oat, and many other grasses, and are influenced in the same way by the varying degrees of moisture in the atmosphere.

Mr. Henderson's observations were made on *Equisetum hyemale*; and he describes the changes which take place in the various parts of the fructification, from the first appearance of the catkin above the terminal sheath of the stem up to the discharge of the mature sporule from the theca.

"When the spike or fructification of *Equisetum hyemale* begins to swell beyond the terminal sheath, the spores may be observed in a rudimentary state on carefully dissecting the theca, the interior of which is at this time divided into cells of extreme tenuity, in which the spores originate. These cells are filled with a viscid, greenish-coloured fluid, which, when mixed with a small portion of water and highly magnified, will be found to contain innumerable minute granules, possessing spontaneous motion, and moving apparently on their axes with considerable rapidity: they are of various sizes and of various shapes, the larger generally oblong, the lesser spherical: they are all equally active, and being transparent, they communicate a whitish colour to the water when viewed with the naked eye. * * It is extremely difficult at this time to detach any of these cells entire, owing to the filmy condition of the walls and the viscid nature of their contained fluid: a better opportunity is afforded of viewing their form and arrangement, by macerating the theca in dilute nitric acid, when they appear somewhat shrunk and collapsed, and the minute granules are therefore easily discernible in the cells and also in the spores: the whole mass is easily forced asunder even to the theca, which separates into parts corresponding with the sides of the outer cells."—p. 568.

The next stage in the progress of the sporules, namely, their transition from the granules with which the cells are at first filled, to the

aggregation of these granules in the centre of the cell, is partially supplied in a passage from Mohl, given as a foot-note at p. 567, from which we make the following extract.

"The young capsules (of *Equisetum variegatum*) are filled with a very delicate, polyhedral, cellular tissue. These cells are connected together in greater or lesser masses, without, however, being surrounded by mother-cells (if they are not rather themselves to be so regarded), and are filled with a granular mass. In older capsules these cells are larger and distinct from each other, and the green granular contents form for the most part a disc lying in the middle of the cell. In still more advanced capsules this green disc is changed into an oval grain, wrapped round with the two elaters. * * — *Flora*, 1833, pp. 45, 46."

The spores are at first oval or ovate in shape, but they soon become globular, which form they afterwards retain: on the contrary the cells, which previously had an angular form from mutual pressure, "gradually acquire substance, separate from each other, and, changing their form, become first globular, and afterwards oval integuments of the spores; the spaces caused by their separation being filled up with a dark green viscid fluid containing abundance of minute granules."

"The next change which the integument undergoes is in the development of the spiral sutures, by which it is divided into two narrow bands with broad and rounded ends: at first the dividing lines are indistinctly seen traversing the integument; after a time they become more distinct, and their spiral direction becomes evident. Two lines of separation run in a spiral direction round the integument, and meet in a sinuous transverse suture at each end: these lines cut the integument into two equal parts, the ends of which are dilated and uniform; and these are the clavate ends of the filaments which have been considered by Hedwig and others as forming part of a sexual apparatus. The separation of the integument into parts takes place immediately after the edges of the sutures have arrived at their proper thickness; it is therefore very difficult after this to find the integument entire.

"The spore at this time contains a greenish-coloured fluid mixed with some minute granules; soon after it changes to a deeper green colour, its contents become thicker, less soluble in water, and filled with a greater number of granules; the fluid which had previously filled the integument and the rest of the theca is gradually absorbed, leaving the granules which it contained sticking in masses to the spores and to the separated portions of the integument. It is these masses of granules, when found adhering to the filaments in the ripened state of the spore, that have been mistaken for pollen-grains: when removed by means of water, they are found to consist exclusively of the lesser granules, the larger ones having now altogether disappeared. As the spore swells, the divisions of the integument are forced asunder; a portion at each end however generally adheres longer; and although further separated, these divisions are still held in their spiral position until the ripening of the spore, when, being ejected from the theca, they recoil with a jerk, and immediately twist into narrow clavate filaments, the state in which they have been most frequently observed."—p. 569.

When the spore is ripe it has a wrinkled appearance ; on the addition of water its size is considerably enlarged and the wrinkles disappear. A curious effect is produced on tincture of iodine being added to the water ; the nucleus of the spore “is contracted to a much smaller size, leaving the outer membrane occupying the space to which it had been distended by the water, and appearing under transmitted light like a transparent limb to the opaque spore.” The minute granules in the spore are said to be “exactly similar to those contained in the pollen-grains of flowering plants ;” and the author is of opinion that they are of the same nature as the smaller granules on the integument and in the spaces between the cells of the theca ; he also finds that the larger granules are soluble in boiling water though not in alcohol ; water does not dissolve the smaller ones, and alcohol produces no other effect on them than to suspend their motion. Iodine imparts to the larger granules a bluish colour, but produces little or no effect on the small ones.

Both kinds of granules have been found by the author in the unripe thecæ of ferns, of *Lycopodium* and of *Ophioglossum* ; he has also observed active granules in the unripe thecæ of mosses and several species of *Jungermannia*, in the apothecia of lichens, in the lamellæ of *Agarics* and the perithecia of some other *Fungi*.

“On comparing these granules with those contained in the unopened anthers of flowering plants, they appear to me to be in every respect identical ; in both cases, where the larger ones occur, they are similarly acted upon by iodine, and are therefore probably of the same nature ; in the theca they appear to occupy a similar place with those in the cells of the anthers, and they decrease in like manner during the progress to maturity of the pollen-grain and of the spore. In the granular contents of the spore also there is the most perfect resemblance to those of the pollen-grain. Perhaps the most obvious difference is in the entire absence of green colour from the fluid of the latter.”—p. 571.

The paper concludes with a detail of the changes which take place in the organization of the theca during the progress of the spores to maturity ; and the descriptions are illustrated by figures.

ART. XLIII.—*Account of two new Genera allied to Olacineæ*. By GEORGE BENTHAM, Esq., F.L.S.

THE two species on which Mr. Bentham has founded one new genus, *Pogopetalum*, are among the plants collected by M. Schomburgk in British Guiana : and fine specimens of another genus, named *Apodytes dimidiata* by Ernst Meyer in Drège’s plants, but first described in the present paper, are in a collection from Port Natal, in South

Africa, communicated to the author by Mr. Harvey. The determination of these genera having led the author into an inquiry as to the affinities of others belonging to the same group, the results of his inquiries are given in the paper here published.

Great difference of opinion seems to have been entertained among botanists, respecting the true position and affinities of the Olacineæ: after giving a synoptical view of the whole order, in which the eleven genera belonging to it are briefly characterized and divided into three tribes, the author comes to the conclusion that Mr. Brown's view of the close connexion of this order with the Santalaceæ is the correct one. The paper concludes with detailed descriptions of the two new genera, which are also figured.

ART. XLIV.—*Extracts from the Minute-Book of the Linnean Society of London.*

1837. Nov. 21. Read the following "Notice of the discovery of *Cucubalus baccifer*, Linn., in the Isle of Dogs." By Mr. George Luxford, A.L.S.

"The accompanying specimen of *Cucubalus baccifer* was, with many others, collected by me in the Isle of Dogs, in the early part of last August. This plant was originally introduced into the British Flora by Dillenius, in the third edition of Ray's Synopsis, [267, under the name of *Cucubalus Plinii*]. He there speaks of it as having been gathered in hedges in Anglesea (Mona) by Mr. Foulkes of Llanbeder, and sent by him to Dr. Richardson; but in a letter from Mr. Foulkes to the latter gentleman, published in the Linnean Correspondence, vol. ii. p. 171, he states that he only had 'an account of it from one who pretended to know plants very well,' but that he himself 'could find no such plant.' In a note to this letter, in the work just mentioned, Sir J. E. Smith says, 'Nobody, as far as I could learn, has ever met with the plant since, except in curious botanic gardens, in any part of the British isles; and accordingly I was obliged to be content with a garden specimen for the figure in 'English Botany,' tab. 1577. I am, therefore, under the necessity, however unwillingly, of excluding the *Cucubalus baccifer* from our British Flora.' It was accordingly omitted when Sir James published his 'English Flora.'

"The locality in the Isle of Dogs is on the banks of the ditch on the left hand of the road from Blackwall to the Ferry-House; and there, if not truly indigenous, it is at least perfectly naturalized. I also feel convinced that I have met with it in similar situations in other parts of England; but the plant not being in flower, I have passed it, as I did the first time I saw it in the Isle of Dogs, thinking it to be merely *Cerastium aquaticum*, which in that state it much resembles. It is probable that, like *Polygonum dumetorum*, this plant only requires to have the attention of botanists directed to it, to lead to its discovery in other localities; and I shall be happy if my meeting with it so near London may be the means of getting it restored to the British Flora, where it is certainly as much entitled to a place as *Centranthus ruber*, *Petroselinum sativum*, and other avowedly naturalized plants."—p. 687.

1838. *June 19.* Read a description of *Cattleya superba*, *Schomburgk*; the description and figure have since been published in Lindley's 'Sertum Orchidaceum,' t. 22.

December 18. Read a "Notice of *Cereus tetragonus*." By Edward Rudge, Esq., F.L.S. The plant is a single stem between nine and ten feet high. For about a foot from the roots it is four-angled; at between three and four feet it is five-angled, with the angles lobed, and within about eighteen inches of the top it has six angles. The flowers are produced from the angles, and near the top of the stem.

1839. *December 3.* Read "Descriptions of some Vegetable Monstrosities." By the Rev. W. Hincks, F.L.S. The case first described occurred in a flower of *Iris versicolor*, which had "5 outer reflexed segments, 4 inner upright segments, 5 stamens, 5 distinct stigmas and a 5-celled ovarium. This variation appears to have been the result of the union of two flowers; and the author has witnessed a similar case in some *Ænothæræ*. The second case occurred in *Iris sambucina*, in which "3 segments of the inner series only remain, while there are 5 parts in all the other circles: the line of junction is much less evident than in the former, but may be observed in the ovarium and tube of the perianthium."

After mentioning similar cases of union of parts in other plants, Mr. Hincks observes:—

"But the most remarkable instance of this kind of union with which he has met, occurs in a specimen of *Scrophularia nodosa*, found at Water Fulford, near York, in which four flowers are united into one. In this case several monstrous flowers occur on the same branch, but are generally unions of only two flowers, and the terminal flowers are invariably of the ordinary structure. This Mr. Hincks regards as what might be expected in a plant with centrifugal inflorescence, where the monstrosity consists of a union of flowers; whereas in the same kind of inflorescence, when the monstrosity consists in a more full and equal development, the central flower might be expected to be the first affected; and this actually occurs in a specimen which he possesses, of a species of *Linaria* with all the terminal flowers (and those alone) *peloriated*.

"In the stalk of the flower of *Scrophularia nodosa* referred to, Mr. Hincks thinks he can recognize the junction of 4 peduncles; the number of sepals is 15, one of them being narrow and somewhat displaced; that of the petals, which all cohere together, 16. Of these 7 are the lower or more developed petals, which are upright in the limb and are united in pairs. * * Of the upper or reflexed petals only 9 remain; and as there are 3 of these in each ordinary flower, if one be supposed to have perished at each juncture, according to the analogy of the *Irides* and *Ænothæræ*, the whole number will be accounted for. The number of stamens is 20, or 5 to each flower; one of these has its anther abortive and changed into a scale, and there are several instances of two being united together, but all may be distinctly traced. There are 3 distinct ovaria," [two of which are each 2-celled, the third is 8-celled].—p. 692.

ART. LXXII. — *List of Jungermanniæ &c. observed in the neighbourhood of Dumfries.* By JAMES CRUICKSHANK, Esq.

THE neighbourhood of Dumfries appears particularly favourable to the growth of Cryptogamic plants, especially mosses and Hepaticæ, as may at once be seen both from the number of species and the size and beauty of the specimens.

The extensive tracts of uncultivated mossy ground on the Dumfries side of the Nith, and the long range of green pasture hills on the opposite side of the river in Kirkcudbrightshire, intersected as they are by deep rocky glens, and in some parts covered with extensive woods, are all favourable to the growth of these orders.

I have for the last two years paid particular attention to the mosses and Hepaticæ, and have succeeded in collecting a good number of species of each. I subjoin a list of the Hepaticæ, with their localities, and, so far as I can judge from my opportunities for observation, the frequency of their occurrence throughout the district.

RIGGIA, Linn.

R. crystallina, Linn. Moist shaded ground, not uncommon : abundant in the orchard at Brownhall, near Dumfries.

ANTHOCEROS, Linn.

A. punctatus, Linn. Sides of ditches and moist ground, not uncommon : abundant on the back of the embankment below the New Quay.

MARCHANTIA, Mich.

M. polymorpha, Linn. Shaded banks and moist ground not uncommon.

M. conica, Linn. Shaded bank near the old College : by the side of a stream in Dalskairth woods.

JUNGERMANNIA, Linn.

J. asplenoides, Linn. Moist woods, damp rocks &c., common. Rare in fruit, though I have found it in that state in several localities, particularly at Dalskairth, in Kirkcudbrightshire.

J. spinulosa, Dicks. Dry rocks at the Craigs, near Dumfries. Near Moffat with perianths ; not common.

J. pumila, With. On rocks and stones in a stream in Dalskairth woods ; rare.

J. cordifolia, Hook. Criffel, Kirkcudbrightshire ; rare.

J. Sphagni, Dicks. Terregles and Criffel, Kirkcudbrightshire : abundant in Locharmoss, Dumfriesshire ; always barren.

J. crenulata, Sm. Near Glen-mills and Goldilee, Kirkcudbrightshire ; rare.

J. hyalina, Lyell. Ruttin-bridge, Kirkcudbrightshire : near Closburn, and in great abundance by the side of the stream a little above Moffat-well, Dumfriesshire.

J. emarginata, Ehrh. Banks of the Nith, near Friar's Carse : abundant among the Kirkcudbrightshire and Moffat hills.

- J. inflata*, Huds. Plentiful in Lochar-moss; always barren, though the perianths are abundant.
- J. excisa*, Dicks. Abundant in various parts of Lochar-moss, Dumfriesshire: by the side of the Glasgow road, a little beyond Maxwilton, in a small Marsh.
- J. ventricosa*, Dicks. Kilton Coves, Dumfriesshire, in fruit; various parts of Lochar-moss, barren.
- J. bicuspidata*, Linn. Lochar-moss, &c., common in damp places.
- J. byssacea*, Roth. Marsh a little above the Ruttin-bridge, Kirkcudbrightshire: on the top of a stone dike, opposite the farm of Akerhead, near Dumfries: and in various parts of Lochar-moss.
- J. connivens*, Dicks. Wet rocks above the Ruttin-bridge, Kirkcudbrightshire: Creechhope Linn, Dumfriesshire. It bears fruit abundantly in May.
- J. incisa*, Schrad. Summit of Criffel: abundant in various parts of Lochar-moss; rare in fruit.
- J. pusilla*, Linn. Moist fields, ditch-banks, &c., common.
- J. nemorosa*, Linn. Friar's Carse, Lochar-moss, &c.: very abundant on various parts of Criffel. Var. *β. purpurascens*, wet rocks near the summit of Criffel.
- J. undulata*, Linn. Small stream above Ingleston, Kirkcudbrightshire, growing among *Hypnum cordifolium*.
- J. resupinata*, Linn. By the side of the English road, Lochar-moss.
- J. albicans*, Linn. Lochar-moss: the Craigs: Glen Mills: Criffel: Dalskairth: and various other places in Kirkcudbrightshire, rather common.
- J. complanata*, Linn. Trunks of trees, roots of hedges and rocks, common.
- J. anomala*, Hook. Lochar-moss, near the side of the Lochmaben road, in considerable abundance; always barren.
- J. scalaris*, Schrad. Road-side near the Craigs: various parts of Lochar-moss, &c. not uncommon.
- J. polyanthos*, Linn. Abundant in a ditch at Terregles: small stream between Criffel and Knockindock.
- J. viticulosa*, Linn. Lochar-moss, by the side of the English road; barren.
- J. Trichomanis*, Dicks. Dalskairth woods, in fruit: various parts of Lochar-moss &c. not uncommon.
- J. bidentata*, Linn. Woods, hedge-banks and moist ground; the most common species we have.
- J. heterophylla*, Schrad. On decaying stumps of trees in the belt of wood at the Powder-Magazine.
- J. Francisci*, Hook. Road-side between Rosehall and Brownhall Farms, near Dumfries. I have not as yet found this rare species in fruit, but *perianths* are abundant.
- J. barbata*, Schreb. Craigs near Dumfries: various parts of the Moffat hills: not com.
- J. Lyoni*, Taylor. Dalskairth, with perianths; side of the stream near Moffat-well. The want of stipules at once distinguishes this from *J. barbata*. Described and figured in 'Transactions of the Botanical Society of Edinburgh,' i. 116, pl. 7.
- J. reptans*, Linn. Abundant above the Ruttin-bridge, growing among tufts of *Dicranum glaucum*: Glenmills and Dalskairth, among mosses on shaded rocks.
- J. setacea*, Web. Abundant in various parts of Lochar-moss, growing among tufts of *Sphagnum*: small marsh by the side of the Glasgow road, a little beyond Maxwilton: abundant on Criffel.

- J. trichophylla*, Linn. Rocks above the Ruttin-bridge: side of a stream in Dalskairth woods: sides of streams among the Moffat hills: by no means common.
- J. platyphylla*, Linn. Craigs near Dumfries, &c. common on rocks and trees, near the ground: rare in fruit.
- J. lævigata*, Schrad. Abundant at the Craigs, near Dumfries; barren.
- J. tomentella*, Ehrh. Wet places in Dalskairth woods. This and the following may be considered two of the rarest, as they are certainly the most beautiful, species of the genus found in this neighbourhood.
- J. ciliaris*, Linn. On a rock above Dalskairth; rare.
- J. serpyllifolia*, Dicks. Dalskairth woods; Craigs near Dumfries: Creech-hope Linn, Dumfriesshire: and near Moffat; always barren.
- J. dilatata*, Linn. Trunks of trees, roots of hedges, rocks and stones; common.
- J. Tamarisci*, Linn. Rocks and trees, near the ground, common; rather scarce in fr.
- J. pinguis*, Linn. Damp ground near the Powder-Magazine, &c., not uncommon in bogs and watery places. Var. β . Lochar-moss.
- J. multifida*, Linn. Marshes and wet ground, pretty common.
- J. Blasia*, Hook. Field opposite Clouden-mills, Kirkeudbrightshire; rare.
- J. epiphylla*, Linn. Moist ground, ditches &c., common. Var. β . less common though by no means rare.
- J. furcata*, Linn. Trees, hedge-roots and rocks, common.
- J. Lyellii*, Hook. Lochar-moss, near the side of the English road, very rare. So very sparing, indeed, is this rare species, that the whole patch might be covered by a man's hat; and though I have made the most careful and anxious search in the same neighbourhood, I could only find this single patch.

JAS. CRUICKSHANK.

Dumfries, April 18, 1842.

ART. LXXIII. — *Notes on the Genus Utricularia.*

By the Rev. J. B. BRICHAN.

THE second species of this genus — *Utricularia intermedia* — has long had assigned to it, as one of its habitats, the Loch of Spynie in Morayshire. Having never examined that locality I cannot positively affirm that the species is not to be found there; but I think that the following remarks, if they do not prove the contrary, at least render it very doubtful whether it has ever been gathered in Morayshire.

About ten years ago I received from a botanical friend a single specimen of an *Utricularia* labelled *intermedia*, and taken from the locality in question. Without particularly comparing it with the description, and not doubting the authority by which it was named, I added it to my collection. Not long after I had the pleasure of finding in the Moss of Inshoch, Nairnshire, a plant flowering abundantly, which on examination I found to be indubitably *Utricularia minor*; it then struck me that the plant I had found and examined was the

same as that which had been sent me from the Loch of Spynie, and on comparing them they appeared identical. Not over confident, however, in my own botanical discrimination, I communicated my opinion to my disinterested friend Mr. Stables, who sent some of my Nairnshire specimens to Sir W. J. Hooker. That distinguished botanist pronounced them to be specimens of *U. minor*, and this, of course, I received as a final confirmation of my own opinion.

It may not at once appear from what I have written, that *Utricularia intermedia* has not been found in the Loch of Spynie. From circumstances, however, which have come under my cognizance, I have not the least doubt that all the specimens gathered there as *U. intermedia* have belonged to the other species — *Utricularia minor*. To confirm what I say, let me present the reader with the following extract from a ‘Collectanea for a Flora of Moray,’ published in 1839.—“*U. intermedia*. Observed to flower annually since 1830, in some holes whence turf seems to have been cut, under the north bank of the Loch of Spynie, about half a mile west from Ardivol. *If there be a specific difference between this and U. minor, the Spynie plant upon closer inspection will probably be found to belong to the latter species.*”

I request the reader’s attention to that part of the extract which I have marked for Italics; it implies a doubt concerning the existence of any specific distinction between *U. intermedia* and *U. minor*. This at once convinces me that the writer of it had never gathered *U. intermedia*, and that the specimens in his possession were specimens of *U. minor*. The former I have never seen, except as figured in Sir J. E. Smith’s ‘English Botany;’ but presuming from the correctness with which *U. vulgaris* and *minor* are there given, that *U. intermedia* also is correctly figured, I have not a doubt as to the truly specific distinctness of all three; and I think that *U. intermedia* would more readily be confounded with *vulgaris* than with *minor*. It seems rather surprising that the Spynie plant should ever have been mistaken, as it appears to have been.

Perhaps the following description of the three species of *Utricularia*, from ‘The Northern Flora,’ may be acceptable to the reader.

1. *Utricularia vulgaris*.

“Plant floating, of considerable size, sometimes fully a foot long. Leaves green, composed of numerous capillary or bristle-like segments, fringed at the margin, and carrying small, beautiful, reticulated bladders. Flowers yellow, placed upon a leafless stem, which elevates them several inches above the water: lower lip longer than the

upper, and having a projecting palate, which is about the same length as the upper lip. Spur conical."

2. *Utricularia intermedia*.

"Leaves with a similarity to those of the former, usually dividing into three parts, each of which splits into two flat acute segments, fringed with bristle-like teeth. Bladders placed upon separate stalks. Flowers yellowish: the upper lip twice as long as the palate. Spur conical."

3. *Utricularia minor*.

"Leaves smooth at the edges and bearing bladders. Flowers few and small, pale yellow, with a very short blunt keeled spur: upper lip about the length of the palate."

The author of 'The Northern Flora' further observes, that "independently of the flowers it will be possible to determine the plants, as follows. The *first* species may be always recognized by the large size, and by the leaves being minutely fringed and supporting the little bladders. In the *second* the bladders are not mixed with the leaves, but placed upon distinct stalks, and the plant is more leafy, with the segments broader, and, so far as I have observed, of a paler green. The *last* species is known by its small size and smooth leaves, which support the bladder-like bodies."

I may add, that as far as my experience goes, *U. vulgaris* flowers in deep water, while *U. minor* flowers only in *shallow*.

J. B. BRICHAN.

Manse of Banchory,
June 11, 1842.

ART. LXXIV. — *Varieties*.

171. *List of some of the rarer Plants observed in the neighbourhood of Birmingham.*

<i>Veronica montana</i> and <i>Anagallis</i> . Sutton Park.	<i>Danthonia decumbens</i> . Moseley & Sutton.
<i>Pinguicula vulgaris</i> . Sutton Park.	<i>Festuca loliacea</i> . Pershore road and other places in the neighbourhood.
<i>Valeriana dioica</i> . Moseley Bog.	<i>Montia fontana</i> . Sutton and Moseley.
<i>Rhynchospora alba</i> . Ditto.	<i>Dipsacus pilosus</i> . Several places in the neighbourhood.
<i>Scirpus cespitosus</i> . Sutton and Coleshill.	<i>Alchemilla vulgaris</i> . Fields on both sides the Pershore road.
<i>Eleocharis acicularis</i> . Sutton.	<i>Sanguisorba officinalis</i> . Common.
<i>Eriophorum vaginatum</i> . Ditto.	<i>Radiola Millegrana</i> . Coleshill Pool.
<i>Alopecurus fulvus</i> . Edgbaston Park.	<i>Echium vulgare</i> . Dudley Castle.
<i>Agrostis Spica-venti</i> . Canal-side near Strawberry-vale.	<i>Anchusa sempervirens</i> . In the hedge of a field in Strawberry-vale.
<i>Aira præcox</i> . Moseley Common & Sutton.	<i>Myosotis cæspitosa</i> . Moseley.
— <i>caryophyllea</i> . Common about Edgbaston.	

- Anagallis tenella*. Moseley, Sutton, and Coleshill.
- Menyanthes trifoliata*. Ditto.
- Villarsia nymphæoides*. Packington Park, abundantly.
- Atropa Belladonna*. Dudley Castle.
- Verbascum nigrum*. Lane connecting the two Walsall roads at Perry Barr.
- Jasione montana*. Plentiful near Sutton.
- Campanula patula*. On the Coventry road 5½ miles from Birmingham.
- *latifolia*. Yardley Bridge.
- *Trachelium*. Perry Barr.
- Rhamnus catharticus*. Yardley Bridge.
- *Frangula*. Coleshill Pool.
- Viola palustris*. Common in boggy places.
- Ribes alpinum*. Side of Edgbaston Pond.
- *nigrum*. Yardley Bridge.
- Helosciadium inundatum*. Coleshill Pool.
- Œnanthe fistulosa*. Yardley.
- Chenopodium polyspermum*. Bristol Road.
- Ulmus carpinifolia*. Edgbaston.
- Parnassia palustris*. Sutton and Moseley.
- Linum usitatissimum*. Castle-Bromwich road.
- Drosera rotundifolia*. Sutton and Moseley.
- Myosurus minimus*. Found in 1839, 40, and 41, at Mr. Dickinson's nursery, Bristol Road; but never more than two specimens in one season.
- Peplis Portula*. Sutton.
- Narcissus Pseudo-narcissus*. Abundant at Yardley.
- Narthecium ossifragum*. Moseley & Coleshill.
- Luzula campestris*, var. *β. congesta*. Moseley Common.
- Rumex palustris*. Sutton.
- Triglochin palustre*. Sutton and Moseley.
- Erica Tetralix*, var. *alba*. Ditto.
- Vaccinium Myrtillus* & *Vitis-Idæa*. Sutton
- *Oxycoccus*. Moseley.
- Epilobium roseum*. Bristol-Road nursery in 1839, but I have not seen it there since.
- *palustre*. Moseley.
- Polygonum Bistorta*. Perry Barr.
- Sedum reflexum*. On houses by the roadside at Solihull.
- Spergula nodosa*. Sutton.
- Rubus Idæus*. Very common.
- Potentilla Comarum*. Moseley and Sutton.
- Nymphæa alba*. Sutton.
- Ranunculus Lingua*. Ditto.
- Galeopsis versicolor*. Perry Barr, &c.
- Scutellaria minor*. Moseley.
- Pedicularis palustris*. Ditto & Coleshill.
- Linaria Cymbalaria*. Dudley Castle.
- Thlaspi arvense*. Field by roadside leading from Mereden to Stonebridge.
- Cardamine amara*. Edgbaston Pond, abundant.
- Turritis glabra*. Lane leading from the Castle-Bromwich Road to Yardley.
- Nasturtium sylvestre*. Sutton.
- *amphibium*. Common in watery places.
- Geranium pyrenaicum*. Harbourn.
- Corydalis claviculata*. Hedge by roadside, Strawberry Vale.
- Genista anglica*. Sutton.
- Hypericum maculatum*. Canal-side near Strawberry Vale, and at Packington.
- *pulchrum*. Moseley.
- *elodes*. Sutton and Coleshill.
- Carduus eriophorus*. Dudley Castle.
- *pratensis*. Moseley and Coleshill.
- Bidens cernua* and *tripartita*. Worcester Canal and elsewhere.
- Chrysanthemum segetum*. Packington.
- Achillæa Ptarmica*. Very common.
- Typha angustifolia*. Sutton.
- Carex vesicaria* and *ampullacea*. Edgbaston Pond and Moseley.
- Littorella lacustris*. Coleshill.
- Myriophyllum spicatum*. Sutton.
- Salix pentandra*. Edgbaston Pond.
- Empetrum nigrum*. Sutton.
- Lastrea Oreopteris*, *Lomaria Spicant* and *Osmunda regalis*. Moseley Common.
- Lycopodium clavatum*. Sutton.

The above list is no doubt very imperfect, but it includes all, except the commoner plants, that I have had an opportunity of observing.—*Samuel Freeman*; 11, *Sun St. West, Birmingham, October, 1841.*

172. *Note on Phascum alternifolium*. I enclose a specimen of the *Phascum alternifolium* of Bruch and Schimper's 'Bryologia Europæa.' It is a very different plant from the *Phascum alternifolium* of British botanists, which is the *Archidium phascoides* of continental authors.—*Jas. Cruickshank ; Crichton Institution, Dumfries, Apr. 18, 1842.*

[The specimens are in fine condition, and are labelled—"Near Dumfries, April, 1842. I discovered it in March, 1840. *It is very rare.*"—*Ed.*]

173. *Arenaria verna*. I likewise enclose a specimen of *Arenaria verna*, from Colveind, Kirkcudbrightshire, where it was discovered by Mr. John Brown, Dumfries, in 1838, thus proving that it is found on the west coast of Scotland, where Sir W. J. Hooker says it does not occur.—*Id.*

174. *Economical use of the Brake (Pteris aquilina, Linn.) in the Forest of Dean*. Passing a few days a fortnight since at a friend's house in the Forest of Dean, Gloucestershire, I was surprized by some girls bringing a quantity of recently cut *Pteris aquilina*, or "*Farn,*" which they retailed about at twopence per bushel. On enquiring the use to which it was put, I was informed that it was extensively employed in the forest for feeding pigs, which are very fond of it. For this purpose, however, it must be cut while the fronds are still uncured, and a quantity of them boiled in a furnace. The *slushy* or mucilaginous mass thus produced is then consigned to the wash-tub, or any other receptacle, and in this state it will keep as pig-food for a considerable length of time. I was informed that it was found very serviceable, especially to cottagers, as coming in at an early period of the summer, when the produce of the garden is but scanty. Perhaps a boiled dish of the *Pteris* in its circinate state, might not be very unpalatable or unacceptable with a broiled rasher of bacon—at least to a hungry man. If so, we might thus have a variation in our spring vegetable condiments; but I am not aware whether the experiment has been made.—*Edwin Lees ; South Cottage, Malvern Wells, June 4, 1842.*

175. *Enquiry respecting Carex axillaris and remota*. Allow me, through the medium of 'The Phytologist,' to enquire if any of the readers of that work can tell me how to distinguish *Carex axillaris* from *Carex remota*. I have spent much time in trying to make out the difference, and all to no purpose. *Carex axillaris* is said to be a very rare plant; this may account for my not being able to make it out. Dr. Goodenough tells us in the second volume of the Linnean Transactions, that the capsules in *C. remota* are entire, and in *C. axillaris* cloven; if I rely on that character *C. remota* I have never seen. But on turning to the third volume of that work, I find Dr. Goodenough withdrawing the statement, and telling us that he believes that all *Carices* dispose of their seeds by the opening of the points of their capsules. It would appear by this that Dr. Goodenough was not a very close observer of the *Carices*, or he would have known that they, at least our British species, do not dispose of their seeds in other way than by their capsules (if so I may call them) and seeds falling together. Smith seems to rely very much on the spikes being simple or compound; he tells us that the spikes of *C. remota* are simple, and those of *C. axillaris* compound: if this be the character to distinguish them by, I have often seen both species on the same root. He also says that the lower bractæas of *C. axillaris* are very long, and that the beak of the fruit is more deeply cloven than that of *C. remota*, though he says the difference is not very striking. It appears that Sir W. J. Hooker relies very much on the length of the lower bractæas in distinguishing the two species; directly opposite to what Smith has said, he tells us that the lower ones in *C. axillaris* are scarcely so long as the spike. He also tells us that *C. axillaris* is a stouter and taller plant than *C.*

remota, the latter character needs no comment; suffice it to say that I have now before me good specimens with roots, varying in height from three inches to three feet; and as to the bracteas, a little attention to the Carices will serve to show that the length of these parts is not at all to be depended upon. I see there is something said in the 'British Flora' on the scales of the calyx of the two species; these I will now examine and give you the result. The three scales I now enclose are from *the same spike*; they all have *two close green nerves*; in one you will observe that the nerves are discontinued below the point, in the others they are extended to the point: you will also observe that one is only about one half the proportionate breadth of the others. As the scales of most of our Carices are much broader about the middle or in the lower part of their spikes than at or near the summit, we may rely too much on such characters. Now, after gaining what information I possibly can from books, I turn to my specimens, and on examining them, among the rest I find two fine specimens of *C. divulsa*, sent to me a few years ago (from what was then considered good authority) for *C. axillaris*; another I find, of recent date (from what is now considered good authority), that was sent for *C. axillaris*, which turns out to be *C. paniculata*; so that I gain no information by this, and as a last resource I avail myself of 'The Phytologist.' Perhaps some of the readers of that work will be able and kind enough (if there be no secret in the matter), to inform me how to distinguish the two species. In addition to the above enquiry, I beg to say that good specimens or information on *any* of the Carices is always most gratefully received by me; as it is my intention, at some time or other, to give a paper at some length on the British species and varieties of this genus, when I shall have to notice some strange forms, and one in particular, which is now considered to be a new species, and will be called *Carex Leylandi*. The plant was discovered by me about a mile from Hebden Bridge in May 1840. It has been seen by Mr. Leighton and many others of our eminent botanists, and they all consider it quite new; and Mr. Babington, in his letters also expresses his opinion that it is distinct. —*Samuel Gibson; Hebden Bridge, June 8, 1842.*

176. *Enquiry respecting Bromus commutatus.* While on the subject of enquiries, allow me to ask what are the "more technical distinctions" of *Bromus commutatus*? (Phytol. 136). The writer of the notice referred to appears to doubt whether *Bromus arvensis* be a British plant; a few days ago I had the pleasure of giving to Mr. Borrer specimens of the true *B. arvensis*. I first found the plant in 1840, growing about half a mile from Hebden Bridge; and in 1841 I again found it in abundance in this neighbourhood. The three spikelets I enclose will serve to show that no reliance can be placed on the size of the flowers: the three are from the same plant.—*Id.*

177. *Stellaria holostea with lacinated petals.* In my rambles about this neighbourhood I have met with a singular lacinated variety of Stitchwort (*Stellaria holostea*?). The petals have at the base of the incisure a very minute tooth, slender and sharp-pointed, about half a line in length; the tip of each segment of the petals is also divided into two unequal acute teeth, the outermost being about half the size of the inner one. The leaves on the stems are the shape and size of those of *S. holostea*, and have also the peculiarly fine serrature of the edges. The flowers are about one third smaller than the regular size of those of *S. holostea*. The plants formed several large bushes in the hedge on one side of the road near the summit of one of our mountains, they occupied a portion of the hedge about a dozen yards in length, forming four or five rather large bushes at each end of the above distance. Bushes of plants with flowers of the regular form were closely adjoining them, the branches in one case in-

tertwining. The laciniation of the petals gave the bushes of the plant a singular appearance, that attracted the attention when at some distance. I intend to try to procure some of the seeds when mature, and sow them against next season, in order to observe whether the dentation of the petals will be transmitted by seeds or not.—*James Bladon*; *Pont-y-Pool*, June 13, 1842.

178. *Lavatera Olbia* in *Epping Forest*. A few years since a new piece of road was made through Epping Forest to Woodford. At a spot called Fair-mead Bottom a large quantity of earth was dug from the forest and thrown up to raise the road, for the distance of about half a mile. The following summer the sides of this piece of road were covered with various plants, such as *Senecio Jacobæa*, thistles, &c., and among them a great number of plants of *Lavatera Olbia*, a species not known, I believe, as a native of Britain. There is not the slightest doubt that the seeds had been buried for a vast number of years, and vegetated when brought to the surface, as it seems impossible for the plants to have got there in any other way. For three or four years they seemed to flourish, and flowered abundantly; but now the banks having become covered with grass &c., they seem to be disappearing, and last year I could find only three or four plants: when I first noticed it there were hundreds scattered along the whole length of the raised portion of the road.—*Henry Doubleday*; *Epping*, June 14, 1842.

ART. LXXV.—*Proceedings of Societies.*

LINNEAN SOCIETY.

Anniversary, May 24, 1842.—The Bishop of Norwich in the chair. The bye-laws relating to the election of officers having been read, the ballot was commenced and the following were declared duly elected.

President. — Edward, Lord Bishop of Norwich.

Edward Forster, Esq., *Treasurer*. J. J. Bennett, Esq., *Secretary*. Richard Taylor, Esq., *Under Secretary*. New members of Council: — Lord Beverley, J. A. Hanky, Esq., John Miers, Esq., R. I. Murchison, Esq., and Alfred White, Esq., in the place of A. B. Lambert, Esq., G. Mantell, Esq., LL.D., The Marquis of Northampton, R. H. Solly, Esq., and W. Yarrell, Esq. It appeared from the Treasurer's accounts that the receipts during the past year had amounted to £785. 10s. 10d., the expenditure to £761. 17s. 5d., leaving a balance of £23. 13s. 5d. in the Treasurer's hands.

The following Statement was read. — "The Council, having had under their serious consideration the financial affairs of the Society, submit the following statement to the Fellows at large. The cost of the Collections and Library of Linnæus, together with those of the first President, Sir James Edward Smith, purchased of the executors of the latter in 1828, amounted to £3000. Of this sum about £1500 were then raised by subscription; and to meet the remainder a debt, on bonds, was incurred, which now amounts to £1300, paying interest at 5 per cent. In consequence partly of this amount of interest, and partly of a diminution in the annual receipts, there has been accumulated, within the last few years, a further debt of about £500. By recent arrangements a saving of some amount has been effected in the expendi-

ture ; but the Council are convinced that no farther material reduction can be made, without greatly impairing the efficiency of the Society, and they desire to avoid, as far as possible, the necessity of calling upon the Fellows to agree to a small charge being placed upon the Society's publications, that appearing to be the most obvious means of supplying the deficiency in the annual receipts. With this view they propose a general subscription, which they trust may reach such an amount as to meet the present liabilities, and to relieve the funds of the Society from the burthen of debt and interest. They, therefore, earnestly recommend the subscription to the members of the Society." The names of subscribers to the amount of £600 were appended to this statement, which was circulated among the members present at the meeting.

The following members have died during the past year :—J. Ansley, Sir W. Beatty, Sir Charles Bell, Rev. I. Bell, J. E. Bowman, Rev. T. Butt, W. Cattley, Dr. E. J. Clarke, Geo. Coles, R. Goolden, W. Harrison, Robert Higgin, Philip Hurd, Dr. J. R. Johnson, A. B. Lambert, C. Lane, Richard Leigh, Robt. Maughan, Archibald Menzies, and David Pennant ; Fellows. Of Foreign Members, Auguste Pyrame De Candolle and Janus Wilken Hornemann. Of Associates, the Rev. R. F. Bree, Professor Don, and Mr. C. E. Sowerby.

BOTANICAL SOCIETY OF EDINBURGH.

June 9, 1842.—Dr. Neill in the chair. Donations to the library and herbarium were announced from the Worcestershire Natural-History Society, Dr. Miguel, M. Parlatore and Mr. Sowerby.

Professor Graham communicated the agreeable intelligence, that the late Mr. Archibald Menzies had bequeathed to the Botanic Garden his interesting and valuable herbarium, which was chiefly formed in the course of his voyages round the world with Vancouver and other circumnavigators. Mr. Menzies was the last survivor of Vancouver's companions, having lived to the age of eighty-eight. He was a native of Perthshire, and studied at this University, towards which he continued throughout life to entertain the warmest feelings of attachment.

The chairman adverted, with deep regret, to the loss which the Society, in common with the botanical world, had sustained by the death of Mr. Falconar of Carlowrie, who was a most zealous and successful cultivator of the science, and who enjoyed, in a high degree, the esteem and respect of his friends.

The following papers were read :—

1. *Notice of the discovery of Phascum alternifolium* (Bruch &c.) in Dumfriesshire, and of *Arenaria verna*, on the west coast of Scotland : communicated by Mr. James Cruickshank. This *Phascum* is not the plant of Hooker, which is the *Archidium phascoides* of continental botanists. The present plant was formerly discovered in Britain, but long ago and in very small quantity. It is, in the opinion of Mr. Wilson, a good species. *Arenaria verna* was found at Drumlanrig, by Mr. Cruickshank. It is very rare, if existing at all, on the west coast of Scotland.*

2. *Notice on the occurrence of Avena alpina and Saxifraga umbrosa in Yorkshire* : by Mr. J. Tatham, jun.† Mr. Tatham says,—“ *Avena alpina* grows here (Settle) at an

* There is a discrepancy between the Report and Mr. Cruickshank's note, Phytol. 263.

† See also a note by Mr. Simpson, Phytol. 75.

elevation of between 600 and 800 feet above the sea. When growing in our elevated open pastures the plants are generally single, also on our limestone cliffs; but when in our natural woods, which are mostly hazle, it is found in large tufts, where you may get perhaps fifty specimens in the space of a few inches. I believe I could send from the same tuft specimens of *alpina* with the panicle quite as simple as any *pratensis*. I consider *Saxifraga umbrosa* as really wild here. It is met with in Heseltine Gill, which is a deep ravine at the foot of Pen-y-ghent, and Fountains Fell. There are only two houses in about three miles, and these not near the place. *Actæa spicata*, *Ribes petraeum*, &c., grow along with it. The valley runs from west to east, and the *Saxifraga* is found only on the south side, which receives no sunshine except in summer. Some of the plants are inaccessible, the cliffs are so steep."

The impression of the meeting was that no specific distinction existed between the plant now shown as *Avena alpina* and *A. pratensis*, and the same remark may be applied to all other specimens of the former hitherto exhibited from British stations.

3. *On three new Species of Grasses of the Genus Poa*: by Richard Parnell, M.D., F.R.S.E. The author stated that these grasses were so unlike, in general appearance, to any of the other *Poæ*, and possessed such strong marks of specific distinction, that he considered them entitled to rank as distinct species. 1. *Poa sectipalea*, Parnell.—This plant differs from *Poa pratensis*, the only species it can well be confounded with, in the branches of the panicle being stouter, more erect and rigid; the spikelets larger. Outer palea seven or nine ribbed, seven of the ribs being very distinctly marked; inner palea one-third shorter than the outer, and invariably divided to the very base: whereas in *Poa pratensis* the inner [? outer] palea has never more nor less than five ribs, and the inner very little shorter than the outer, and always entire. Found growing in sandy situations between Cramond and Queensferry. 2. *Poa polynoda*, Parnell. This species differs from *Poa compressa*, in the florets not being ribbed at the base; outer palea five-ribbed. Joints eight or ten in number, the uppermost joint situated but a short distance from the panicle; whereas in *Poa compressa* the florets are very distinctly ribbed, suspending the carix [?] by their silky fibres. Outer palea three-ribbed. Joints seldom exceeding four in number. 3. *Poa nemoralis, montana* of Koch. Inflorescence simple, panicked, occasionally racemed. Panicle erect, narrow and slender; the branches erect, long and slender, bearing few spikelets. Spikelets lanceolate-ovate, of two or three awnless florets. Calyx of two unequal, acute glumes, three-ribbed. Florets not in the slightest degree webbed. Outer palea five-ribbed, the dorsal and marginal ribs slightly hairy. The whole plant is of a glaucous hue. This grass was first obtained by Dr. Greville, who, in the year 1833, gathered several specimens on Ben Lawers; since then it has been found in many parts of the Highlands, but has hitherto been considered as a glaucous variety of *P. nemoralis*.

These grasses are figured in Dr. Parnell's work on the Scottish grasses, now in the press, in which he has given 130 figures, with minute descriptions.

Dr. Graham exhibited some beautiful exotics from the greenhouses, chiefly natives of Asia—and also a specimen of the interesting *Megaclinum falcatum* in flower, which had been raised by Mr. Gray, of Greenock. A handsome plant of *Armeria fasciculata* from the south of Europe, which had been raised in the Horticultural Garden, was likewise exhibited. — *The Edinburgh Evening Post and Scottish Standard*, Saturday, June 18, 1842.

May 20, 1842. — J. E. Gray, Esq. F.R.S., &c., President, in the chair. The following donations were announced. A specimen of sugar-cane from Madeira, presented by Mr. James Halley: a specimen of *Bupleurum tenuissimum*, found at Highgate and presented by Mr. W. Mitten (Phytol. 203): British plants from Mr. G. H. K. Thwaites, Mr. John Ellis and Mr. Edwin Lees: Books from the President. A paper was read from Edwin Lees, Esq., F.L.S., "On the Flora of the Malvern Hills. Part 3: being a Sketch of the Cryptogamic Vegetation indigenous to the chain."

Notwithstanding the limited extent of this narrow chain of hills, scarcely exceeding nine miles in length, and rising to only 1500 feet in altitude, yet they offer almost every variety of aspect and condition favourable to the development of Cryptogamic vegetation. In fact the Malvern Hills, when considered only as a ridge, without reference to the country around them, are far more remarkable for their *Acotyledonous* than their *Vascular* productions.

Commencing with the Northern termination of the hills in Cowleigh Park, several miniature syenitic spurs here appear, abrupt and rocky yet prettily shaded with wood, amidst deep glens and shaggy defiles overtopped by lateral steepes of limestone, amidst whose gullies streamlets are ever gushing with musical intonation. From this "happy valley" a verdant park-like glacis leads the wanderer up among the exposed treeless turf, and rugged, jutting-out, lichened rocks of the End and North Hills, those of the latter being more precipitous and remarkable than those of any other hill of the chain, and boasting a great number of lapideous lichens. Between this hill and the Worcestershire Beacon, a deep and winding valley extends, watered by bubbling streamlets, and abutted by moist dripping rocks on the southern side, where several species of *Jungermannia* shelter; but it must be observed that excepting in this place, and in "The Gullet" (as it is termed) of the Holly-bush Hill, almost all the other Malvern rocks are without exception dry and bleached by the wind and sun. At the Western base of the Worcestershire Beacon occurs one of the few bogs that yet remain about the hills, *Aspidium Oreopteris* marking this and the other boggy places by the profusion in which it covers the margin of the black soil. A mile farther south, at "the Wych," the syenite and limestone are in contact, and the latter having been extensively quarried, numerous abandoned excavations occur, in many instances embowered in wood, and offering favourite habitats for many mosses unable to fruit on the sun-burnt sides of the hills. These limestone rocks also offer an instructive example of the lichens more particularly affecting limestone, when compared with the loftier and more exposed syenite.

From the Worcestershire Beacon undulating green knolls, many cultivated to near the summit, stretch past the Wells for a distance of four miles to the Herefordshire Beacon, without any intervening valley; but diversified in some places by rocky dry ravines, strewed with broken fragments, and in others by plantations, or natural thickets of stunted whitethorn along their sides. Round tufts of *Ulex nanus* dot the hills in every direction. The portion of the chain just mentioned terminates rather abruptly at "the Wind's Point," where a deep valley commences, plunging down to the eastern base of the Herefordshire Beacon, and extending to the romantic wooded vicinity of Little Malvern Priory, where some thick alder-holts shroud a purling stream.

The Herefordshire Beacon, with several detached eastern buttresses, lifts up its bare, shivering and indented fortified sides in sullen grandeur, turf and mosses alone occupying its windy ramparts, except a number of scathed, old, scattered elder-trees.

Mr. L. considered that nearly one half of the plants occupying the Malvern Hills are Cryptogamic; and the following synopsis will show this to be not an unreasonable supposition, especially as the census the author had taken is not to be considered a perfect one, embracing however all the species Mr. L. had been enabled to identify after an attentive examination of five years and upwards.

ENUMERATION.	Species.
Ferns and Equisetaceæ,	25
Mosses,	121
Jungermannia,	23
Other Hepaticæ, Characeæ, &c.	15
Lichens,	223
Fungi,.....	305
Total,.....	712

Mr. Lees had been unable to give any attention to the *Algæ Confervoidæ*, and had not taken much note of the minuter species of *Sphæria* among the Fungi, so that were these carefully noted by the algologist and practised mycologist, doubtless the list might be easily extended to a thousand or more. But in an enumeration of the Flora of any locality, especially when considered with reference to a comparison with other lists, it is hardly fair to drag into the account every black spot or stain upon leaves or dead sticks; and therefore Mr. L. had left untouched nearly all but the really tangible and decided species, independent of minute microscopical examination.

Ferns.—The rarer ferns of the hills are *Polypodium Dryopteris* and *Allosorus crispus*; the latter only occurs upon the Herefordshire Beacon, thus offering a good illustration of the geographical distribution of plants, the fern thus occurring so sparingly on these hills being plentiful upon the Welch mountains. *Asplenium viride*, also another fern of common occurrence about the waterfalls of Wales, though not found on the hills themselves, occurs on an old stone bridge over the Teme called Ham Bridge, a few miles northward of Great Malvern. *Aspidium Oreopteris* occupies in profusion the margin of various boggy spots on both the eastern and western sides of the hills. *Aspidium dilatatum* is of common occurrence among the stones of the hills; and *Asplenium Filix-femina* almost fills the little watery glens running among them. *Polypodium vulgare*, with stunted growth and multilobed varieties, is not unfrequently met with in and on the sides of deep hollow lanes. *Grammitis Ceterach*, though scarcely truly belonging to the district, and not found on any of the rocks, yet flourishes on a massive stone wall by the side of the road at Great Malvern; and Mr. L. had also noticed this fern growing in the interstices of an old brick wall at Forthampton. On Rosebery Rock, north of Great Malvern, Mr. L. had gathered very singular specimens of *Scolopendrium vulgare*, eighteen inches in length, with the extremities of the frond lobed in a most remarkable multifid manner; the specimens are in the Society's herbarium, having been sent some time since. *Pteris aquilina* robes the bases and three parts up most of the hills of the chain, and would be a great pest were it not mowed down every autumn, and stacked in ricks for litter by the humble economical farmer. It is perhaps remarkable that Mr. L. had never yet been able to detect a single species of *Lycopodium* at any point or in any spot throughout the entire length of the chain or about its base.

Mosses.—The mosses have exercised a considerable agency in the creation of the soil now upon the Malvern Hills; doubtless indeed they were the primary originators

of vegetation upon the bare rocks, whose hollows they have filled up in the lapse of ages with a soft spongy carpet, and so encompassed and obscured them that numerous masses of grey rock, almost immersed in the verdant mossy inundation, now scarcely exhibit their points above it. The lichens have been generally considered as the first pioneers of vegetation, but their efforts to create a *humus* for the nourishment of other plants are but trifling when compared with the economical powers of the mosses. To test this by experiment, observing the tiled roof of an outbuilding at Malvern Wells, evidently erected but a few years, studded with tufts of *Bryum capillare*, (Linn.), Mr. Lees gathered one of them in March last, with the black earth collected around its base. The mass altogether weighed six ounces; but when, after repeated and careful washings, Mr. L. had extracted all or nearly all the black mould that enveloped the roots, the actual residuum of frondescence when weighed amounted to only half an ounce; thus satisfactorily showing (for no soil could have been collected on the sloping roof, independently of the agency of the *Bryum*) that the moss, through atmospheric and imbral agency, had formed a soil exceeding its own weight at the very least above ten times! By operations on a more extensive scale, it is easily conceivable how a bare mass of rock may, in the course of a few years, be covered with a thick coating of soil, sufficient for the nourishment of any of the phanerogamous species adapted to the climate and elevation where they may stand. Mr. L. regretted that in the experiment adduced he could not certainly determine the exact space of time that the *Bryum* had occupied the roof; but as it is found expedient, from the excessive growth of mosses, to cleanse roofs about Malvern almost every year, Mr. L. felt certain that, at the utmost, the plants in question had been located on the tiles between two and three years. *Bryum hornum* has been noticed to be a great accumulator of soil in marshy spots; while the excessive growth alone of the stems and foliage of such mosses as *Sphagnum palustre*, *Dicranum glaucum*, *Bryum palustre*, *Hypnum molluscum*, *Hypnum cuspidatum*, &c., in the course of time entirely fills up bogs, drinks up their water, and conduces to their ultimate establishment as component parts of *terra firma* fit for useful cultivation. In this manner Mr. Lees considered the Malvern Hills to have received originally that rich *humus* which covers their sides, and which, combined with the disintegrating touch of time's mouldering fingers, renders their soil, in the present day, capable of immediate cultivation, even in the steepest places, producing crops that well repay the toil of the industrious cultivator, and tend to give an impulse to fresh inclosures of the verdant turf every year. On a first cursory glance at the turf of the hills, there seems a great sameness in the mosses that luxuriate there. *Dicranum scoparium*, *Hypnum triquetrum*, *splendens*, *purum* and *molluscum*, seeming as if they had united to exclude the rest, *Hypnum triquetrum* especially everywhere predominating. However, a little attention will show a considerable variety, especially upon or in the immediate vicinity of the rocks or on the margin of the numerous tinkling rills that show a cincture of the tenderest green wherever they trickle down. Inclusive of the woods about the bases of the hills, Mr. Lees had numbered 121 species, without by any means exhausting the interminable *Hypna*, so that it is probable a few more may yet be detected. Specimens of nearly all that Mr. L. had met with accompanied the paper, and many of them were exhibited. Here followed a list of those observed.

June 3.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Mr. J. A. Brewer exhibited living specimens of *Ophrys muscifera*, *Aceras anthropophora*, *Orchis ustulata*, *Paris quadrifolia*, *Mespilus germanica*, and other interesting plants from Reigate, Sur-

rey. Mr. T. Twining, jun., exhibited a large collection of cultivated specimens from Twickenham. Mr. M. J. F. Sidney presented a specimen of *Lycopodium lepidophyllum* from Valparaiso. Mr. Adam Gerard presented a collection of plants from Sierra Leone. Dr. J. B. Wood presented specimens of *Carex elongata*, collected at Chorlton, near Manchester, (Phytol. 198). Donations to the library were announced from the Natural-History Society of Northumberland and Mr. M. J. F. Sidney: and British plants had been received from Mr. Sidney. Read, the continuation of Mr. Edwin Lees' paper (commenced at the last meeting), — "On the Flora of the Malvern Hills. Part 3: being a Sketch of the Cryptogamic Vegetation indigenous to the Chain."

Hepaticæ.—Among the Hepaticæ occur *Anthoceros punctatus* and *Targionia hypophylla*, the latter at the foot of the Worcestershire Beacon; and there are three species of *Marchantia*, *polymorpha*, *conica* and *hemisphærica*. The *Jungermanniæ* are not in such variety as might have been expected, though some of them, especially *Tamarisci*, *dilatata* and *ciliaris*, are abundant upon the turf of the hills as well as upon the rocks. *Jungermannia pinguis* (Linn.) is excessively common, though very rarely fruiting: *J. tomentella* is a beautiful species that has only occurred in one place, on a dripping rock in "the Gullet." The following are all the species Mr. L. had met with:—

Jungermannia asplenioides	Jungermannia complanata	Jungermannia Mackaii
ventricosa	scalaris	serpyllifolia
bicuspidata	viticulosa	dilatata
connivens	Trichomanis	Tamarisci
pusilla	bidentata	pinguis
resupinata	platyphylla	epiphylla
albicans	ciliaris	furcata
obtusifolia?	tomentella	

Lichens.—The Malvern Hills are particularly remarkable for the various lichens they produce, most of which grow in a very luxuriant and beautiful manner; and in the moist autumnal and wintry months many of the rocks present an appearance from them truly gratifying to the lover of nature. Some of the harder granitic rocks are entirely covered with *Umbilicaria pustulata*, which at this time is of an olive-green colour, and as flabby as a piece of moist leather, though in the summer months it appears as black and sooty as if subjected to the action of fire. On other rocks the deep purple *Parmelia omphalodes* extends itself, contrasted with wide patches of the grey *Parphysodes*, the darker *P. saxatilis*, the dingy *P. olivacea*, or the conspicuous glaucous pitted thalli of *Sticta scrobiculata*. On the higher rocks the curled *Cetraria glauca* grows in abundance; while a remarkable hoary aspect is imparted to the protruding masses by the silvery *Toidium coralloides*, and the still more coralline appearance of *Sphærophoron compressum*. The rein-deer lichen, *Cladonia rangiferina*, called by Crabbe

"The wiry moss that whitens all the hill,"—

is plentiful on the turf with its allied species, and the sadder and darker *Cornicularia*; while in every part the brown and scarlet apothecia of the *Scyphophori*, in all their multiform varieties, contribute to decorate the scene. In the whole, including the cortical lichens, about 220 species are met with.

It may be specially remarked that the *Parmeliaceæ* and *Collematæ*, and the *Peltigerous* tribe of lichens, are particularly abundant on the Malvern Hills, as well on the moss and turf as on the rocks. Here followed a list of the lichens, most of which accompanied the paper.

Fungi.—The extensive dispersion of the majority of the Fungi causes them to be met with in most parts of the country at all favourable to fungoid development. The moist grassy declivities of the hills are, however, in autumn peculiarly adapted to the growth of the Agaric tribe; and at that season great quantities appear, and of every conceivable colour, from the vivid scarlet of *Agaricus muscarius*, or the brilliant green and yellow of *A. psittacinus*, to the duldest brown assumed by the common fairy-ring *A. oreades*. Mushrooms are generally very plentiful, though the common kind, *A. campestris*, is much exceeded in numbers and luxuriance by *A. Georgii*: *A. procerus* is also very abundant, and frequently of enormous size. *A. granulosus*, *pratensis*, *conicus* and *coccineus* commonly occur. The short turf, too, is often adorned by different coloured *Clavariæ*, intermixed with the dark *Geoglossum glabrum* and *Spathularia flarida*. The brilliant little blood-red *Peziza humosa* is very common amongst dark masses of *Polytricha*; while in moist weather a characteristic feature is presented to view in the great number of “Jews’ ears” (*Exidia Auricula-Judæ*), hanging upon the countless old elders that cover the eastern declivity of the Herefordshire Beacon.

The little beech-wood behind the Wells Hotel, harbours several rare or curious species; and here Mr. L. had gathered the following species in great abundance:—

<i>Agaricus hypothejus</i> , <i>Fries</i> .	<i>Hydnum repandum</i>	<i>Helvella crispa</i>
torminosus	<i>Thelephora coralloides</i>	<i>Peziza onotica</i> , <i>Pers.</i>
violaceus	<i>Clavaria abietina</i>	<i>Phallus impudicus</i>
glaucopus	<i>rugosa</i>	

In the same little wood *Bryum roseum* may always be found, and Mr. L. had gathered it in fruit there.

Many other fungoid productions may be met with: and here followed a list of those observed.

On the whole the Flora of Malvern may be considered as most remarkable and abundant rather in its Cryptogamous than Phanerogamous productions. After an attentive examination of the hills and the district around them for some years, Mr. Lees had been enabled to determine:—

Dicotyledonous Plants,	553
Monocotyledonous Plants,	173
Total Phanerogamic,	726

Mr. L.’s Cryptogamic census amounts altogether to 712, and with a little more industry and research among *mycological* productions, the author doubted not it might considerably exceed this amount, while few, he thought, could be added to the Phanerogamous list. The flowering plants observed by Mr. Lees are extended to the limits (given in the first paper, Phytol. 152) to the banks of the Severn, while the Cryptogamia are more exclusively the product of the hills and the woods at their bases. Altogether the entire number of plants which Mr. Lees had determined and appropriated as belonging to the Flora of the Malvern Hills, amounts to 1438.

Thanks having been voted to Mr. Lees for his interesting communication, the President announced that the Council had appointed Mr. Arthur Henfrey, Curator; and that the herbarium might be inspected every Monday, Wednesday and Friday, from 10 to 4, and on Friday evenings from 7 to 10. The President also announced that the first excursion of the members would take place on the 7th instant.—*G. E. D.*

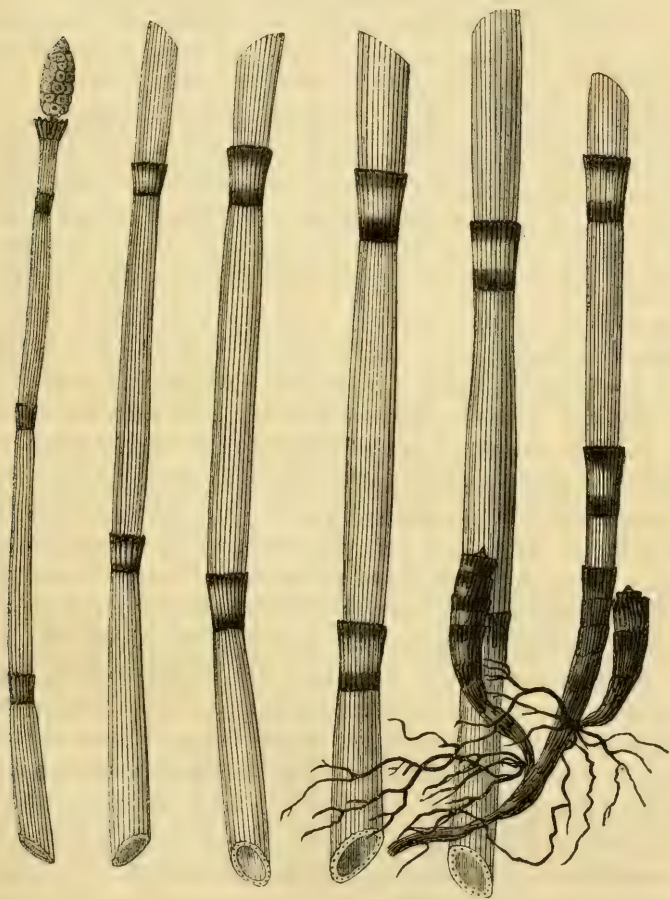
THE PHYTOLOGIST.

No. XV.

AUGUST, MDCCCXLII.

PRICE 1s.

ART. LXXVI. — *A History of the British Equiseta.*
By EDWARD NEWMAN.



ROUGH SHAVE-GRASS, or DUTCH RUSH.
EQUISETUM HYEMALE of Linneus.

β. *Equisetum Mackaii*, Newman. *Equis. elongatum*, Hooker, 'London Journal of Botany,' 42; but neither of Willdenow nor Reichenbach.

γ. *Equisetum variegatum*, Schleicher.

ALTHOUGH our more eminent modern botanists have considered as distinct species the plants which I have here given as varieties; and although I most willingly admit that each, in its extreme state, is without difficulty to be distinguished from the others; yet I am totally unable to find *constant* characters by which to distinguish either: I shall therefore treat of them as constituting but a single species, figuring nevertheless each peculiar form of its natural size, and giving on one block magnified representations of those characters which have been pointed out as *distinctive*.

The figures usually quoted as representing this plant are so incorrect that they can only be referred to with doubt. Tragus* and Dalechamp,† whose figures are usually quoted as representations of *Equisetum hyemale*, have adorned the upper part of each stem with whorls of short branches, which give the plant a very extraordinary appearance, and suggest the idea of their being intended for *Equisetum limosum* or *Hippuris vulgaris*, the upper part of the stems much resembling the latter plant; and it should be added that Tragus assigns to his figure the name of *Hippuris*. It should however be observed that one of these figures is a servile copy from the other, the outline having been traced and transferred to another block, by which the figure has been reversed. The figure in Matthioli,‡ also supposed to refer to this species, may possibly be intended for the *variegatum* of Schleicher; but I can only venture this as a suggestion, for it is by no means characteristic of any plant with which I am acquainted. Gerarde's figure§ evidently represents *variegatum*: the specimen selected for the purpose being more than usually divided: the learned author however ascribes to his plant the property usually assigned exclusively to the normal form, speaking of it as the "small and naked shave-grasse wherewith Fletchers and Combemakers doe rub and polish their work."|| Camerarius¶ also represents *variegatum*. The figure in 'English Botany'*** appears to me to be spoiled by an attempt to represent the roughness of the stem, which of course cannot be accomplished. That in the 'Flora Londinensis'†† is the most characteristic I have met with.

* Tragus, Hieron, 692. † Dalechamp, Historia, 1071. ‡ Matt. Valg. ii. 375.

§ Ger. Em. 1113.

|| Ger. Em. l. c.

¶ Camer. Epit. 1586.

** Eng. Bot. 915.

†† Flora Londinensis, 161.

The medicinal and other properties of this *Equisetum* have been amply recorded by the earlier herbalists, but most of them appear to quote Galen as their authority. In consequence of the confused nomenclature and very indifferent figures of these authors, the properties in question become very doubtful as intended for the present species; and even were they so intended, all faith in them, as far as regards medicine, has long been exploded. *Tragus** tells us that it is most useful as a medicine, taken internally or externally; internally its properties appear to be somewhat astringent, but it has long been out of use: held to the nostrils and applied at the same time on the neck, it stops bleeding at the nose, and when bruised and laid on a recent wound it staunches the blood.

We are told by *Lightfoot*† that “some entertain an opinion that if cows chance to feed upon” this *Equisetum* “their teeth will drop out: how far this may be true,” he adds, “I know not, but I am persuaded that the pasture must be very bad where they are compelled to eat such food.” *Sir William Hooker* appears to give the plant credit for this injurious quality: he says “that though while to sheep it proves injurious, and that the teeth of cows who eat it soon fall out, it is wholesome for horses.”‡

The stems of this plant have for centuries been used by artificers in smoothing the surface of wood, bone, and even metal, previously to giving these substances their final polish. This employment of the

* *Vires ac temperamentum.*

Hippuris ea quæ capillamento potius quam folio articulatur, magni in medicina et maxime probandi est usus, propter miram sanandi vim quam obtiret spissandi facultate prædita et utrisque corporis partibus utilissima.

Intrinsecus.

Hippuris cujus jam meminimus, sistendi sanguinem mira facultate pollet. Succus namque ejus bibitus profluvia sanguinis * * * * cohibet. * * * Eadem potest aqua stillatitia per diem bis aut ter mensura trium cochlearium sumpta. Succus in vino potus tormina ventris sedat, tussim, orthopnæum, ruptaque adjuvat necnon dissectiones vesicæ et intestinorum enterocelasque.

Ad eadem herba vino decocta et calida pota facit. Potest vero vel herba vel radix, vino aquave ad omnes istas affectiones decoqui, pro ratione morbi.

Extrinsecus.

Succus herbe expressus naribusque inditus et cervici simul impositus sanguinem e naribus erumpentem sistit. Idem aqua stillatitia efficit.

Herba tusa ac cum succo suo imposita cruorem e vulneribus manantem supprimit ipsaque intra paucos dies glutinat teste Galeno qui *Hippurim* ad sanguinis rejectionem * * * ad dysenterias et ad alia ventris profluvia generosum esse medicamentum asserit.

† *Lightfoot*, ‘*Flora Scotica*,’ 650.

‡ *Flora Londinensis*, 156.

stem was noticed by Gerarde in the passage already quoted. Haller[†] also mentions it as being in his day used in common with other species of *Equisetum* to polish metal vessels, but speaks of this species as being the roughest and best. We are further told by Lightfoot[†] that "in Northumberland the dairymaids scour their milk-pails with it." The value of this plant for the purpose of smoothing or polishing is not, however, merely traditionary, or, like its medicinal virtues, imaginary: it is still used for polishing wood, bone, ivory, and various metals, particularly brass; for this purpose it is imported, under the name of "Dutch Rush," in large quantities, from Holland, where it is grown on the banks of canals and on the sea ramparts, which are often bound together and consolidated by its strong and matted roots. Bundles of this imported Dutch Rush are exposed for sale by many London shopkeepers. They may be seen at Mr. Woodward's, Old Compton St., corner of Frith St., Soho. I find however that a doubt exists with some excellent botanists, whether the Dutch Rush as cultivated in Holland is identical with either of the plants which I have enumerated. Mr. Shepherd, the curator of the Liverpool Botanic Garden, having this plant in cultivation, has most kindly supplied me with specimens in a recent state. These are of much larger size than any British specimens of *hyemale* I have yet seen, and present structural characters more strikingly different from those of either of the British plants, than those by which these are distinguished from each other. The most obvious differences are the much greater number of striæ, amounting in some instances to thirty-two, and the colour of the sheath, which, at the base, is identical with that of the stem, and towards the apex paler or grey-green, the extreme margin being tipped with black. The differences, however, do not appear so great on examining a bundle of these rushes as exposed for sale; the stems being generally of much smaller size, and the sheaths variegated with black and white, as in our British specimens.

α. Equisetum hyemale.

This plant appears almost unknown in the midland and southern English counties. Indeed, throughout the kingdom it is but sparingly distributed, and may be considered a strictly local plant.— In Turner and Dillwyn's 'Botanists' Guide,' the following English habitats are recorded: — in Northumberland, Scott's wood, wood be-

* *Omnia Equiseta ad polienda vasa metallica adhibentur. Hoc tamen ut omnium asperrimum ita aurifabris et scriniariis suos ad usus optissimum est.*

† Lightfoot, 'Flora Scotica,' 650.

low Mill Green, and Heaton wood ; in Cumberland, Lowgelt-bridge ; in Durham, woods about Derwent bridge and Castle Eden Dean ; in Yorkshire, woods at Castle Howard and Kirkham, Rigby woods near Pontefract, near Ingleton and Halifax, about Leeds, Hackfall, near Huby, Laver Banks and Mackershaw wood, on the banks of the Skell by Ripon ; in Cheshire, near Arden Hall, in a wood close to the river ; in Norfolk, on St. Faith's bog and Arming Hall wood, near Norwich ; in Nottinghamshire, about the middle of Nettleworth Green, two miles from Mansfield, plentifully among the rushes ; in Warwickshire, in a moist ditch near Middleton ; in Cambridgeshire, Stretham Ferry and Gamlingay Bogs ; in Bedfordshire, Potton Marshes and Ampthill Bogs ; in Wiltshire, in a rivulet near Broadstitch Abbey, plentifully. The same authors have recorded two Welch habitats : — in Denbighshire, on the west side of the brook that runs from Henllan Mill into the river Elwy, about 300 yards from Trap Bridge, less than a mile from Garm, and in Flintshire, near Maesmynnann. Through the kindness of Dr. Greville, Dr. Balfour and Dr. Campbell, I have received specimens from several Scotch habitats, more particularly in the vicinity of Edinburgh. Mr. Kippist informs me that he has seen it in abundance in the woods about Corra Lyn, Lanarkshire. In Ireland, Mr. Mackay and Mr. Moore have found it in the counties Dublin and Wicklow.

The roots are strong, black and frequently divided ; the rhizoma or underground stem is creeping, jointed, branched, and with age extends to a great length : at the joints it is solid, but between them it is partially hollow, the interior being occasionally more or less divided by longitudinal septa. The stems are generally erect, and, when divided, the branch is lateral, and issues from the main stem immediately below the base of one of the sheaths ; a stem has rarely more than a single branch. The annexed figure represents a branched specimen, for which I am indebted to Dr. Greville : it is from Roslin woods, near Edinburgh.



The engraving at the head of this article represents a stem of fine but not extraordinary growth : the stem has been divided into six portions in order to exhibit the whole at a single view ; its diameter and length, together with the distances between the sheaths, have been faithfully copied. The sheaths in the specimen figured are fourteen in number, the internodes decreasing in length towards

either end. Both the internodes and sheaths are striated, the former more strongly so : the striæ are usually about twenty in number in luxuriant stems, but this number is liable to great variation, and appears to depend solely on the size of the stem, always decreasing towards its attenuated apex. The stems are hollow, and jointed or divided by a strong transverse septum at each of the sheaths : the striæ of the sheaths correspond in number with those of the internodes, and they terminate in an equal number of acute and elongate, but membranous and often deciduous teeth. Under certain but unascertained conditions these teeth become setiform and persistent, but in general all trace of them is early lost, the upper margin of the sheath exhibiting a regular series of rounded divisions, uniform in number with the striæ of the stem. The basal portion of each sheath is black, the central part whitish, and the upper part again black, the deciduous teeth excepted, the sides of which are membranous and transparent.

Sir Humphrey Davy detected in the stem of this plant an extraordinary quantity of silex ; it is this that communicates the rough and file-like character to its exterior, from which it derives its value as an article of commerce. The silex appears in the form of minute crystals, and is arranged with beautiful and perfect regularity. Under the microscope we find on the stem numerous longitudinal series of elevations, each bearing a cup-shaped depression in its centre, at the bottom of which is placed a stoma. In the volume on Optics in Lardner's 'Cabinet Cyclopaedia,' Dr. Brewster has recorded that he found each particle of silex to possess an axis of double refraction. We are told by botanists that the quantity of silex is so great and the particles are so closely set, that the whole of the vegetable matter may be removed by maceration without destroying the form of the plant.

The catkin is small, dark coloured, apiculate and terminal ; its scales are from forty to fifty in number, and each is impressed with two or three vertical striæ. Before the scales have separated in their approach to maturity, these striæ are continuous throughout the catkin, even entering its terminal apiculus, which, in consequence, assumes a polyhedral figure : they generally correspond in number with the striæ of the last internode, thus leading to the conclusion that the catkin is a metamorphosed portion of the stem.

EDWARD NEWMAN.

(To be continued.)

ART. LXXVII. — *List of Plants observed in the neighbourhood of Manchester.* By J. B. Wood, Esq. M.D.

Broughton, near Manchester,
March 10, 1842.

SIR,

I have noticed and read with much interest and pleasure the several local lists which have appeared in 'The Phytologist.' Of the utility of such catalogues I think there can be but one opinion, as it is only by such means that the Botany of the Kingdom can be satisfactorily known, the geographical range and distribution of the various species ascertained with any degree of accuracy, and the discovery of new habitats for some, hitherto considered unique or very rare, made public. Should you deem the accompanying list of the principal plants of the Flora of this neighbourhood (and I have mentioned only such as I conceived were not generally diffused, from the fear of trespassing too much on your pages) worthy of having a place in your valuable columns, I shall feel myself obliged by its insertion.

I am, Sir,

Yours most respectfully,
J. B. WOOD, M.D.

To the Editor of 'The Phytologist'

Acorus Calamus. Frequent in the neighbourhood, and flowering more or less freely every season.

Agrimonia Eupatoria. In meadows, hedge-banks &c. but not frequent.

Agrostis vulgaris, var. γ . *pumila*. On Baguley Moor.

Alchemilla vulgaris. In meadows, pastures, &c. very common.

Alisma ranunculoides. In ponds on Baguley Moor, plentiful.

Anagallis tenella. Common in boggy situations, Hale Moss, &c.

Andromeda polifolia. Abundant on all the peat-mosses.

Anthemis arvensis. Clover fields, occasionally.

Aquilegia vulgaris. Baguley Moor, Cotterill Wood, but sparingly.

Arctostaphylos Uva-ursi. Upon the hills near Mottram and Glossop.

Arundo Calamagrostis. Rostherne Mere and near Staly-bridge, in plenty.

Avena strigosa. In cornfields &c. not unfrequent.

Barbarea præcox. In cultivated fields, plentiful.

Bidens tripartita and *cernua*. Frequent; var. β . *radiata*, abundant on Wilmslow Com.

Bromus racemosus. Very common in meadows and cultivated fields.

—— *secalinus.* In fields occasionally.

Calamintha Acinos and *Clinopodium*. Rather scarce; the former is rather plentiful in the neighbourhood of Bowdon.

Callitriche autumnalis. Reservoir near Mere Clough.

Calluna vulgaris, var. β . *hirsuta*. Baguley Moor, Boghart-hole Clough, &c.

- Campanula latifolia*. Frequent in many places, Broughton, &c.
- Cardamine amara*. In moist woods, not uncommon.
- Carduus nutans*. Near Disley, Cheshire.
- *heterophyllus*. In a meadow above Mere Clough.
- Carex acuta*. Rostherne Mere, plentiful.
- *ampullacea*. Abundant in many places.
- *axillaris*. Near Leigh, very rare.
- *binervis*. In various places near Prestwich and Pilkington.
- *curta*. Upon peat-mosses and swampy places, very common.
- *dioica*. Hale Moss, Baguley Moor and Knutsford Moor.
- *elongata*. Abundant in three localities.
- *fulva*. Baguley Moor.
- *intermedia*. Rostherne Mere and near Moston, sparingly.
- *lævigata*. In swampy fields and woods, frequent.
- *muricata*. In the vicinity of Tildsley, plentiful.
- *pendula*. Common in woods.
- *Pseudo-cyperus*. On the margins of ponds, very common.
- *pulicaris*. Rostherne Mere, Hale Moss, &c. plentiful.
- *riparia*. Near Tildsley and at Rostherne Mere, in abundance.
- *stricta*. In the greatest profusion on the borders of Rostherne Mere.
- *strigosa*. Cotterrill Wood, Reddish, Marple, &c., very plentiful.
- *vesicaria*. Near Tildsley and at Mere Mere, in immense quantities.
- Carum Carui*. Occasionally in cultivated fields.
- Catabrosa aquatica*. About ponds and ditches, common.
- Centunculus minimus*. Wilmslow Common and Hale Moss.
- Cerastium semidecandrum*. Kersall-moor race-ground.
- Cerasus Padus*. Near Agecroft.
- *avium*. Near Rostherne.
- Chrysosplenium alternifolium*. In boggy woods, not uncommon.
- Cicuta virosa*. In the vicinity of Rostherne.
- Cladium Mariscus*. On the borders of Rostherne Mere.
- Convallaria multiflora*. Near Mottram.
- Coriandrum sativum*. Found occasionally.
- Cornus sanguinea*. Woody banks of Rostherne Mere.
- Corydalis claviculata*. Frequent in hedges.
- Crepis paludosa*. In all our swampy woods, very common.
- Crocus nudiflorus*. Very common in meadows.
- *vernus*. Near Hulme and Prestwich.
- Danthonia decumbens*. In dry heathy situations, plentiful.
- Daphne Laureola*. In Cotterrill Wood.
- Dianthus Armeria*. Near Moston, (Miss Potts, Chester).
- Drosera anglica, longifolia and rotundifolia*. All very common on the Mosses.
- Elatine hexandra*. Mere Mere, Cheshire.
- Elymus europæus*. Cotterrill Wood.
- Empetrum nigrum*. On all the mountainous districts, abundant.
- Epilobium angustifolium*. On hills near Bury.
- Epipactis latifolia*. In woods, but not common.
- *palustris*. Knutsford Moor and near Moston.

- Eriophorum angustifolium*, *polystachion* and *vaginatum*. On all the peat-mosses in profusion.
- Festuca bromoides*. In sandy ground, very common.
- *lohiacea*. In meadows, frequent.
- *elator*. On the banks of the Irwell, near Agecroft.
- Fumaria capreolata*. Very common.
- Galeopsis versicolor*. In potato-fields &c., frequent.
- Genista anglica*. On heathy moors, not uncommon.
- Gentiana Amarella* and *campestris*. Hills in Saddleworth.
- *Pneumonanthe*. Baguley Moor and near Tildsley, frequent.
- Geranium Columbinum*. Not unfrequent.
- Geum rivale*. Mere Clough &c. in profusion.
- Gnaphalium dioicum*. Greenfield, and common on the neighbouring hills.
- *rectum*. Near Agecroft, Boghart-hole Clough &c. plentiful.
- Gymnadenia albida*. In Saddleworth and near Pilkington.
- *conopsea*. On hills behind Ashton-under-Lyne.
- Habenaria viridis*. Greenfield.
- Helosciadium inundatum*. Frequent.
- Hieracium sabaudum*, *sylvaticum* and *umbellatum*. Common.
- Hypericum Androsæmum*. In two or three localities.
- *dubium*. Not uncommon.
- *elodes*. Greenfield, very rare.
- Hypochaeris glabra*. In cornfields about Bowdon, abundant.
- Impatiens Noli-me-tangere*. Bamford Wood, near Heywood, in great abundance, and undoubtedly wild.
- Isolepis fluitans*. Ponds on Baguley Moor, plentiful.
- Lactuca muralis*. Moist shady woods, not uncommon.
- Lamium amplexicaule* and *incisum*. The former about Bowdon, the latter in many places.
- Lathræa squamaria*. Near Northen, Eccles and Broughton.
- Lemna trisulca* and *polyrhiza*. Ponds in various places.
- Lepidium Smithii*. Altrincham and other places, but local.
- Limosella aquatica*. Mere Mere, Cheshire.
- Listera cordata*. Hills near Bury.
- Littorella lacustris*. Baguley Moor, Mere Mere, &c.
- Lolium multiflorum*. In cultivated fields and waste ground, abundant.
- *temulentum*, var. *β. arvense*. Cornfields, not unfrequent.
- Lotus corniculatus*, var. *δ. tenuis*. Near Withington, and many other places.
- Luzula campestris*, var. *β. congesta*. Common on all our mosses.
- Lysimachia Nummularia*. Rostherne Mere.
- Malva moschata*. Frequent about Rostherne and Broughton.
- Matricaria Chamomilla*. Near Old Trafford in abundance.
- Mentha Pulegium*. Near the Railway-station at Godley.
- *piperita*. Clayton vale, plentiful.
- *rotundifolia*. Greenfield.
- Milium effusum*. In various woods, but not common.
- Myosotis versicolor*. Very common.
- *sylvatica*. Cotterrill Clough and other places, abundant.

- Myrica Gale.* Rostherne Mere, in profusion.
Myriophyllum spicatum and *verticillatum.* Both very common.
Narcissus biflorus. Near Pilkington, plentiful.
Nasturtium amphibium. Near Stretford.
 ——— *terrestre.* In wet places, common.
Oenanthe crocata and *Phellandrium.* In two or three localities.
Papaver dubium. In corn-fields, very common.
 ——— *Argemone.* Not unfrequent.
 ——— *Rhæas.* Very rare.
Paris quadrifolia. Cotterrill Wood, plentiful.
Parnassia palustris. Hale Moss, abundantly.
Pedicularis palustris. In the same locality and at Rostherne Mere.
Petasites vulgaris, var. *β. hybrida.* The banks of the Irwell and Mersey are covered with the blossoms of this beautiful plant.
Pinguicula vulgaris. In swampy situations amongst the hills near Bury, &c.
Polygonum Bistorta. In meadows, very common.
 ——— *minus.* On Hale Moss, Baguley Moor and Wilmslow Common, very plentiful.
Potamogeton lucens. In Rostherne Mere, in abundance,
 ——— *pectinatus* and *perfoliatus.* In the Worsley Canal, near Tildsley.
 ——— *pusillus*, and var. *β. compressus.* Both equally common.
 ——— *rufescens.* Abundant in many places.
Primula veris. Near Altrincham, but comparatively rare.
Radiola Millegrana. Baguley Moor and Bowdon Moss.
Ranunculus Lingua. Seaman's moss-pits, Altrincham.
Rhynchospora alba. On all the peat-mosses abundantly.
Ribes Grossularia. In Cotterrill Wood, unquestionably wild.
 ——— *rubrum.* Red-brow Clough.
Rosa villosa. Not uncommon.
 ——— *tomentosa.* Near Agecroft, rare.
Rubus Chamæmorus. Greenfield.
 ——— *saxatilis.* Ashworth wood.
 ——— *idæus.* In all our woods and copses, common.
 ——— *cæsius* and *suberectus.* Not unfrequent.
Sanguisorba officinalis. Near the banks of the river, very abundant.
Saponaria officinalis. On the banks of the Medlock, plentiful.
Saxifraga granulata. Near Agecroft and in Chorlton, but sparingly.
 ——— *Hirculus.* This still exists on Knutsford Moor, but is almost destroyed by the rapacity of some individuals who have dug it up *for sale*, in the most remorseless manner.
Scirpus sylvaticus. Very common.
Scutellaria minor. Near Bowdon, rare.
Sedum Telephium. In several localities.
Senecio sylvaticus. Very common.
 ——— *erucæfolius.* Near Bowdon and Mosley, very common.
Silene inflata. Very rare.
Sium angustifolium. About Altrincham and Bowdon, frequent.

- Sparganium ramosum*, *simplex* and *natans*. All very common; the latter is seldom seen in flower here.
- Stachys ambigua*, Sm. Mere Clough, abundantly.
- Stellaria aquatica*. Near Chorlton, but rare.
- *nemorum*. Moist shady situations on the banks of rivers, *extremely abundant*.
- Stratiotes aloides*. In ponds, frequent.
- Teesdalia nudicaulis*. About Bowdon, in several places.
- Thrinchia hirta*. Near Tildsley, abundant.
- Trifolium medium*. Woods and hedges, plentiful.
- *filiforme*, Sm. Near Bucklow Hill.
- Triticum caninum*. About Chorlton &c. plentiful.
- Trollius europæus*. Near Pilsworth in abundance.
- Typha angustifolia*. Common near Stretford &c.
- Utricularia minor*. Hale Moss and Baguley Moor, plentiful.
- Vaccinium Myrtillus*, *Oxycoccus* and *Vitis-idaea*. Common on heaths and moors.
- Valeriana dioica*. Near Reddish and in Broughton, abundantly.
- Valerianella dentata*. In cornfields &c. not unfrequent.
- Veronica montana* and *scutellata*. Abundant in many places.
- Vicia sylvatica*. Cotterrill Wood.
- *tetrasperum*. In cornfields, occasionally.
- Villarsia nymphaeoides*. Near Chorlton, but originally introduced.
- Vinca minor*. In woods near Marple, and near Agecroft.
- Viola odorata*. Hough-end, but rare.
- *palustris*. In swampy situations, very frequent.
- *lutea*. In mountainous pastures behind Mottram.
- Wahlenbergia hederacea*. Near Mottram, but rare.

FERNS AND THEIR ALLIES.

- Allosorus crispus*. Fo-edge, near Bury, in great profusion.
- Asplenium Ruta-muraria*. Hough-end, but not common.
- *Trichomanes*. Arden-Hall, near Reddish.
- Botrychium Lunaria*. Rough upland pastures in several localities.
- Cystopteris fragilis*. Rostherne Church.
- *dentata*. Salebark and Greenfield, in both places very rare.
- Equisetum sylvaticum*. In woods and hedges, very abundant.
- Hymenophyllum Tunbridgense* and *Wilsoni*. Both found on rocks at Greenfield, but very sparingly.
- Lastræa Oreopteris*. In various woods, common.
- *spinulosa*. Baguley Moor, rare.
- *Thelypteris*. On the borders of Rostherne Mere in great plenty.
- Lycopodium alpinum*, *Selago* and *clavatum*. Frequent on the high mountainous moors near Bury, and at Greenfield.
- *inundatum*. Baguley Moor, plentiful.
- Osmunda regalis*. In the same place as the last, and on Chat Moss.
- Pilularia globulifera*. In ponds &c. on Baguley Moor.
- Polypodium Phegopteris*. In Mere Clough, Boghart-hole Clough &c. in abundance.
- *Dryopteris*. In the same localities, but more sparingly.

Polystichum aculeatum. Cotterrill Wood.

———— *angulare*. In the woods at Marple abundantly.

———— *lobatum*. In the same place, and also in Bamford Wood.

Scolopendrium vulgare. Cotterrill Wood and other places.

ART. LXXVIII. — *Analytical Notice of the 'Transactions of the Botanical Society.'* Vol. i. pt. i. Edinburgh: Machlachlan, Stewart, & Co.; H. Bailliére, London; Smith & Son, Glasgow; W. Curry, jun. & Co. Dublin; J. B. Bailliére, Paris; J. A. G. Weigel, Leipzig. 1841.

I. — *Monograph of the British Atripliceæ*. By CHARLES C. BABINGTON, M.A., F.L.S., F.B.S., F.G.S., &c.

"MUCH difficulty attends the determination of the species in the genus *Atriplex*, owing to the great tendency of some of their parts to become disproportionally enlarged when the plants are growing upon a richer soil than that to which they are accustomed. The leaves become thick and fleshy, and their form so much changed as nearly to obliterate the characters drawn from their shape and outline of margin; an erect plant may become prostrate, or a slender and elegant one may be so much thickened, and so irregularly swollen in some or all of its parts, as scarcely to be identified by any person who has not made these plants his peculiar study. It must therefore be manifest that, in determining the species, those specimens should be selected for examination which are least affected by these changes. This is more particularly requisite in considering the calyx and fruit; for in almost all the species a few of the calyces upon an individual are often very much enlarged and even become foliaceous, in which cases the fruit, if produced at all, is much larger than in the neighbouring calyces which are of the usual size, and the seed is often tuberculated and opaque, when its being smooth and shining is characteristic of the species. It is probable that these unnaturally enlarged fruits are monstrosities, and would not germinate. These changes are generally the result of extreme luxuriance, caused by the plants growing upon richly manured soil or the muddy sea-shore, when their natural locality is waste land, or the shingly or rocky beach."—p. 5.

The author remarks that he has ventured on the attempt to elucidate the species belonging to this tribe, "only after a careful and long-continued study of the living plants:" and that it is probable that many even of our most eminent botanists will say — "if the plants are indeed of so very variable a character as is represented in this paper, and the distinctions between them so uncertainly defined, they ought not to be divided to so great an extent, and that several of the species which I consider as distinct, must be looked upon as only forms of variable plants."

Mr. Babington meets these objections by observing that he cannot but think he has done well in keeping distinct all the species here described; for, however anomalous may be their forms, he can always refer the living plants to their respective species: and that if they are not to be separated by the characters employed in this paper, they must be reduced to fewer species than the author conceives would be recommended by "the most energetic 'lumper of species.'"

In Meyer's 'Flora Altaica' the European species of *Chenopodiaceæ* are divided into four tribes, which may be thus characterized.

1. *Salsolææ*. Seeds with little or no albumen; embryo spiral. British genera, *Salsola* and *Schoberia*.
2. *Chenopodiaceæ*. Seeds albuminous; embryo forming a ring round the albumen; (in these points agreeing with the two following tribes): flowers hermaphrodite: stems not jointed. British genera, *Chenopodium* and *Blitum*.
3. *Salicornææ*. Flowers hermaphrodite: stem jointed. British genus, *Salicornia*.
4. *Atripliceæ*. Flowers diœcious or monœcious, sometimes with a few hermaphrodite flowers intermixed: stems not jointed. British genera, *Atriplex* and *Halimus*.

Mr. Babington remarks — "These tribes are well marked by their very different habit, although in description their characters may not appear to be peculiarly strong:" and then proceeds to describe the genera and species to which the paper refers.

I. *ATRIPLEX*, Linn. Flowers polygamous: female perigone compressed, formed of two distinct or more or less connate leaves: stigmas two: pericarp membranaceous, free: seed vertical, either attached near the base by a lateral hilum, or towards the centre by means of an elongated funiculus; testa crustaceous; radicle inferior, ascending. "*Wallr. Sched. Crit.* 114. *Nec ab Esenbeck, Gen. Pl. Germ. Icon. (Monochlam.)* 63."

The genus *Atriplex*, as thus restricted, may be again divided into the two following sections.

1. *Euatriplox*, Meyer, (the true *Atriplices*). Leaves of the female perigone two, distinct to the very base: seed vertical; horizontal in the hermaphrodite flowers, which are rarely produced.
2. *Schizotheca*, Meyer. Flowers monœcious, (true hermaphrodite flowers never appearing): leaves of the female perigone more or less connected below, the attachment not extending above the lower half.

"In both of these sections, only the latter of which has as yet been detected amongst the native plants of Britain, the pericarp is quite detached from the perigone, the testa is crustaceous, and the radicle, although always ascending, is never terminal."—3.

1. *Atriplex littoralis*, Linn. Root fibrous. Stem erect, two or three feet high, smooth, angular; branches numerous, alternate, erect. Leaves linear-lanceolate, en-

tire, or sometimes slightly toothed, stalked. Spikes long, erect, clusters distinct, of from 4—12 or more flowers. Enlarged calyx-valves rhomboidal-ovate, acute, toothed, with spreading tubercles on the back; terminal point rather prominent. Seeds black, smooth and shining. “*Linn. Sp. Pl.* 1494! *Bluff et Fingerh. Comp. Fl. Germ.* (ed. 2), i. pt. 1. 446; *Reich. Fl. Excurs.* 577; *Sm. Eng. Fl.* iv. 260; *Eng. Bot.* 708; *Huds. Fl. Ang.* (ed. 2). 444; *Wahl. Suec.* 661; *Fl. Alt.* iv. 311; *Detharding, Cons. Megap.* 24; *Bab. Prim. Fl. Sarn.* 81.”

On the sea-coast in many places. Annual. July to November.

2. *Atriplex marina*, Linn. Root fibrous. Stem erect, two or three feet high, smooth, angular; branches numerous, alternate, erect. Leaves ovate-lanceolate, irregularly toothed, sometimes nearly entire; in luxuriant specimens the lower leaves are nearly ovate, inciso-serrate: stalked. Spikes long, erect, clusters distant, of from 3—6 or 8 flowers. Enlarged calyx valves somewhat cordate-triangular, obtuse, toothed, tuberculated on the back. Seeds smooth and shining, black, with a slight reddish tinge, fuscous-red when immature. “*Linn. Mantissa*, 300; *Bluff et Fingerh.* 446; *Reich.* 577; *Dethard.* 24; *Bab. Prim.* 81. *A. serrata*, *Huds.* (ed. 2) 444. *A. littoralis*, β . *Wahl.* 661; *Sm. Engl. Fl.* iv. 260.”

On the sea-coast in many places. Annual. July to September.

Mr. Babington remarks—“These two plants (*littoralis* and *marina*) differ from all the following, by the total want of larger lobes at the base of their leaves. The latter species has long been considered as only a variety of the former, although originally distinguished by Linnæus, and also adopted as a species by Hudson. Within the last few years, they have been again distinguished upon the authority of the observations of Detharding, as published in his *Conspectus* quoted above; and I have much pleasure in recording, in confirmation of their distinctness, the valuable and independent observations of Mr. Power.”—p. 6.

It is probable that in a living state the plants may differ more than they do in description; the chief points of distinction appear to be that in *A. littoralis* the enlarged calyx-valves have “the apex in general considerably projecting and acute, each in an advanced state *remarkably diverging* from its fellow, and giving a peculiarly rough aspect to the plant,” the tubercles on the margins of the valves are not coloured, and “the whole plant is more or less covered with a *greenish-hoary* mealiness:” while in *A. marina* the calyx-valves have “an obtuse contour at the apex, which scarcely at all projects from the outline of the valve, in many cases appearing like a mere continuation of the marginal denticulations: they are *closed* when mature:” the points of the tubercles on the margins of the valves are generally reddish, “and the whole fruit and the fruit-stalks have a peculiar *yellowish* mealiness.”

3. *Atriplex angustifolia*, Sm.! Stem erect or prostrate, nearly round, striated, usually with long, simple, opposite branches; each branch and the main stem termi-

nating in a wand-like, interrupted, subsimple spike of distant few-flowered clusters. Leaves lanceolate, entire; lower ones hastate, the lobes ascending from a wedge-shaped base, all shortly stalked. Enlarged calyx-valves rhomboidal, acute, entire; lateral angles acute, prominent, ascending, without tubercles on the back, reticulated, rather longer than the smooth, shining, black seeds. "*Sm. Eng. Fl.* iv. 258; *Wallr. Sched. Crit.* 116; *Eng. Bot.* 1774; *DC. Fl. Fr.* v. 371. *A. patula*, *Huds.* 443; *With. Arr.* ii. 275; *Wahl.* 660."

Common on waste and cultivated land. Annual. July to October.

"In its normal state the whole of this plant is slender and delicate, the leaves thin, and the calyx of the fruit small, but sometimes the stems and leaves become thickened and very fleshy, and the calyces exceedingly enlarged (I have seen them an inch in length, and broad in proportion) and even tubercled. In this monstrous form the fruit is usually transformed into leaves, and no seed is produced. Various intermediate states occur, and often only a few of the calyces become monstrous, whilst the rest of the plant retains the normal appearance."—p. 7.

4. *Atriplex erecta*, *Huds.* Stem most frequently erect, sometimes weak and prostrate, quadrangular, striated, often reddish, 12 or 18 inches high; branches mostly opposite, simple, ascending. Leaves mostly opposite; lower leaves ovate-oblong, wedge-shaped at the base, with ascending lobes, irregularly dentate, sinuato-dentate or inciso-dentate; upper leaves lanceolate or nearly linear, entire; all pale green above, mealy beneath. Spikes many-flowered, terminal and axillary, shortly branched; flowers in small, round, dense clusters, usually so close as to appear continuous on the spike, in which respect this plant differs from *Atr. angustifolia*. Enlarged calyx-valves rhomboidal, acute, toothed above the lateral angles, which are acute, sometimes prominent; valves more or less muricated on the back, scarcely longer than the seed, densely clothed with minute, pellucid, crystalline glands, which dry into a mealy coat. Seed black, smooth, shining, half the size of that of *Atr. patula*. "*Huds. Fl. Ang.* (ed. 1) 376; *Sm. Eng. Bot.* 2223! *Eng. Fl.* iv. 259; *DC. Fl. Fr.* v. 371; *Bab. Prim.* 82; *Fl. Bath. Suppl.* 88. *A. angustifolia*, *Drej. Fl. Hafn.* 106."

Common on cultivated land throughout England. Annual. July to October.

It is probable that this plant is frequently confounded with *Atr. angustifolia*, which Mr. Babington says it sometimes resembles in the lower leaves being without teeth and the spikes being interrupted, but from that species "it is still clearly distinguishable by its compound spike, calyx-valves and leaves." He also observes:—

"Our plant is certainly the *Atr. erecta* of Hudson and Smith, of which the only authentic specimen, preserved in Sir J. E. Smith's herbarium, is apparently only the upper part of a very luxuriant plant; in it the calyx of the fruit is much more spinous than is usually the case, and the panicle larger and more dense."—p. 8.

5. *Atriplex prostrata*, "Bouch." Stem prostrate, quadrangular, somewhat striated, much branched, branches prostrate. Leaves nearly opposite, fleshy, hastate-triangular, entire or with few teeth, lateral lobes horizontal or slightly descending, the base

truncate, margins entire or rarely sinuato-dentate; in the intermediate leaves the lateral lobes are ascending, the base wedge-shaped, and one or two teeth are generally to be found above the lobes; the uppermost leaves are lanceolate and entire, gradually decreasing until they become very small nearly linear bracteas: all the leaves, as well as the other parts of the plant more or less clothed with mealiness. Spikes terminal and axillary, numerous, slightly branched, clusters small and distinct, as in *Atr. patula* and *angustifolia*. Valves of the calyx of the fruit cordate-triangular, often scarcely longer than broad, and but just covering the seed, sometimes more nearly cordate, rarely much elongated and with two prominent angles between the lateral ones and the apex. The valves are often unsymmetrical in form, usually slightly toothed. Seeds black, smooth, shining, small. “‘*Bouch. Fl. Alb.* 76;’ *DC. Fl. Fr.* iii. 387; *Bot. Gall.* 398; *Lois. Fl. Gall.* (ed. 2.) i. 218. *A. triangularis*, *Willd. Sp. Pl.* iv. 965? *Reich.* 578? *A. latifolia*, *Wahl.* 660? *Drej. Fl. Hafn.* 107?”

Common on the sea-coast. Annual. August to October.

There appears to be much uncertainty respecting this plant. None of the descriptions of the authors referred to exactly agree with it, although those of Wahlenberg and Drejer's *Atr. latifolia* come nearer than any others. Mr. Babington, considering our plant to be identical with DeCandolle's *Atr. prostrata*, notwithstanding the imperfect description, has preferred adopting that name rather than to “introduce another species into this difficult genus.”

6. *Atriplex patula*, Linn. Stem erect, quadrangular, striated; branches ascending. Lower leaves ovate-hastate, toothed, lobes horizontal; upper leaves lanceolate, usually entire. Spikes terminal and axillary, long, wand-like; clusters of flowers numerous, distinct. Valves of the calyx of the fruit rhomboidal triangular, often entire, usually slightly mucronated on the back, lateral angles obtuse; much longer than the fruit. Seeds opaque, rough, often tinged with red. “*Linn.* 1494! *Sm. Eng. Bot.* 936! *Eng. Fl.* iv. 257; *Reich.* 577; *Bluff et Fing.* 445; *Wallr. Sched.* 115; *Fl. Alt.* 310; *DC. Fl. Fr.* v. 370; *Bab. Prim.* 83. *A. hastata*, *Huds.* 443; *With.* 274. *A. latifolia*, β . *elatior*, *Wahl.* 660.”

Common throughout the country. Annual. June to October.

This plant is very variable in luxuriance; in a rich soil the calyx-valves often take the character of leaves, and then “several sets of apparent calyces are found within each other, with one or more enlarged fruits inclosed in them.” Attention must also be paid to the characters of *Atr. angustifolia*, *prostrata*, *deltoidea*, *microsperma* and *rosea*, in order to avoid confounding them with the present species.

7. *Atriplex microsperma*, Walds. et Kit. Stem erect or ascending, striated, angular; branches ascending. Leaves opposite; lower ones ovate-hastate, toothed, lobes prominent, horizontal; upper leaves small, linear-lanceolate, almost awl-shaped, very acute, entire, with a prominent, acute, horizontal lobe on each side of the truncate base. Flowers in small, close clusters, forming on the stem a compound, branched, terminal panicle; on the branches they take the form of branched spikes. Valves of

the calyx of the fruit ovate, triangular, acute, entire, rugose but very rarely tuberculated on the back, rather longer than the fruit. Seed smooth, shining, black, about half the size of that of *A. patula*. "*W. et K. Plant. Hung. Rar.* t. 250; *Reich.* 578; *Bab. Fl. Bath. Suppl.* 88; *Sadl. Fl. Pest.* 475. *A. ruderalis*, *Wallr. Sched.* 115; *Bluff et Fingerh.* 445."

"On waste ground near Bath. Wouldham in Kent, *Mr. C. A. Stevens*. Annual. July to September."

8. *Atriplex deltoidea*, *Bab.* Root fibrous. Stem erect, quadrangular, striated, branched; branches ascending, one or two feet high, often tinged with red. Leaves mostly opposite, all triangular-hastate, truncate at the base, lobes descending, irregularly dentate or sinuate-dentate, sometimes nearly entire, apex acute-angled, dull green above, mealy beneath; uppermost leaves or bracteas usually of the same form as the lower ones, only longer in proportion to their breadth, rarely entire, with a tendency to a wedge-shaped base. Spikes numerous, branched, densely flowered, forming a large terminal panicle, each lateral branch also terminates in a branched spike. Clusters of flowers small, round, close together. Calyx of the fruit small, ovate-triangular, sometimes almost cordate below, acute, truncate, strongly muricated, slightly stalked, but little longer than the fruit, thickly covered with a fine mealy coat. Seed black, smooth, shining, about half as large as that of *A. patula*, reddish when immature. Upper part of the plant covered with a minute crystalline afterwards mealy coat. — "*Bab. Prim. Fl. Sarn.* 83; *Leight. Fl. Shrop.* 501."

"On cultivated and waste land near London, in Kent, Leicestershire, and near Maidenhead. Annual. July to October."

"Having now studied this plant during three successive autumns, I am confirmed in my opinion, that it is a distinct and unnoticed species. It is now found to be rather a common native of England."—p. 13.

9. *Atriplex rosea*, *Linn.* Stems diffuse, procumbent or ascending, usually slender, square, striated, sometimes much thickened and fleshy, clothed with whitish meal in common with all parts of the plant, often beautifully tinged with red or purple, with spreading branches. Leaves ovate-triangular, with two large, prominent, horizontal lobes at the base, irregularly sinuato-dentate, very white and mealy beneath; upper leaves similar in general character, but with the lobes smaller in proportion and the leaf lanceolate: in the more fleshy plants the leaves are more triangular and less lobed, the upper ones being more lanceolate and nearly entire; in a straggling much branched form occurring on muddy shores, all the leaves are lanceolate and nearly entire, a few only having small basal lobes. Clusters few-flowered, small, distinct, either collected towards the end of the stem and branches into a somewhat spicate form, each being subtended by a small lanceolate bractea; or a few of the uppermost clusters only are bracteated, the rest being axillary; or else the clusters are all axillary, except the two or three last, and all so much scattered that the spicate appearance is quite lost. Calyx of the fruit large, rhomboidal, acute, toothed in the upper part, with a double series of tubercles on the back, sometimes nearly smooth, varying in outline even on the same plant. Seed large, tubercularly rugose, opaque, tinged with red. "*Linn. Sp. Pl.* 1493; *Koch*, 611; *Bluff et Fingerh.* 443; *DC. Bot. Gall.* 398; *Fl. Alt.* 314; *Bab. Prim.* 84; *Sadl. Pest.* 476. *A. alba*, *Reich.*! *A. patula*, β . *Smith, Fl. Br.* iii. 1092!

Common on the sea-coast in rocky, gravelly, or muddy situations. Annual. July to September.

Apparently the most variable of the genus, but when once known easily distinguishable from all the other species. It often approaches *Atr. patula* and *angustifolia* in the form of the leaves and the scattered clusters of flowers, and *Atr. laciniata* in the form of its fruit; from all these the very large lobes of the leaves, the form and dentate margins of the calyx, and the scattered flowers will serve to distinguish it.

10. *Atriplex laciniata*, Linn. ! Whole plant covered with whitish meal. Stems diffuse, prostrate, branches spreading. Leaves irregular in outline, between triangular and rhomboidal, irregularly toothed and lobed, hoary beneath. Clusters of flowers small, mostly collected into leafless terminal spikes, a few only being seated in the axils of the upper leaves. Calyx of the fruit rhomboidal, with each lateral angle broadly truncate; the valves vary in breadth, but retain the general form, three-ribbed on the back, lateral ribs sometimes tuberculated towards the extremity. Seeds rough and opaque. "*Linn.* 1494; *Sm. Eng. Bot.* 165; *Eng. Fl.* iv. 257; *Wahl.* 661; *Koch*, 611; *Bluff et Fingerh.* 414; *Fl. Alt.* 313; *Bab. Prim.* 84; *Sadl. Fl. Pesth.* 476."

Common on the sea-coast. Annual. July to September.

II. *HALIMUS*, Wallr.* Flowers monœcious: female perigone compressed, leaves two, tridentate, connate to the apex: stigmas two: pericarp very slender, when mature adhering to the tube of the perigone: seed vertical, pendulous by an elongated funiculus, ascending to the apex; testa membranaceous; radicle terminal, porrected. "*Wallr. Sched. Crit.* 117; '*Wahl. Act. Upsal.* viii. p. 228, 254, t. 5, f. 2;' *Fl. Suec.* 662; *Nees ab Esenbeck Gen. Pl. Germ. Icon.* (*Monochlam.*) 64."

"In these plants the perigone is contracted below into a peduncle, which in *H. pedunculatus* is elongate, and although short, is still present in *H. portulacoides*."—p. 4.

1. *Halimus pedunculatus*, Wallr. Stem herbaceous, erect, flexuose, shortly branched. Leaves obovate-oblong, obtuse, entire, contracted at the base into a short petiole, upper ones of the same form but narrower. Flowers scattered, in a lax terminal spike, sessile; as the fruit ripens the base of the calyx becomes lengthened into a long slender peduncle, the upper part taking an inversely wedge-shaped form, with two obtuse lobes and an acute intermediate point. "*Wallr. Sched. Crit.* 117; *Reich.* 576; *Bluff et Fingerh.* 442; *Koch*, 609. *Atriplex pedunculata*, Linn. 1675! *Sm. Eng. Bot.* 232; *Eng. Fl.* iv. 261."

On the sea-coast, very rare. Annual. August and September.

Mr. Babington mentions the variations in length to which the peduncle appears subject; it being, in his English specimen from Yarmouth, nearly an inch long, while in a German specimen it scarcely

* This genus was founded by Wallroth in his '*Schedulæ Criticæ*,' 117, for the reception of *Atriplex pedunculatus*, Linn.; and he observes—"Perhaps *Atr. portulacoides* may also belong to this genus; I have not seen the fruit."

exceeds a line: in the latter, too, the expanded part of the calyx differs in form, the lateral lobes being rounded, and not longer than the intermediate one. The author remarks, — “Can there be two species confounded under this? Unfortunately the extreme rarity of the plant puts great difficulty in the way of the determination of this point.”

2. *Halimus portulacoides*, Wallr. Stem erect or ascending, woody, branched. Leaves oblong-lanceolate, obtuse, entire, contracted below into a rather long petiole. Flowers in small clusters, forming a small, branched, terminal raceme. Peduncle very short; calyx of the fruit rounded below, widening upwards, three-lobed at the top, intermediate lobe usually longest; lower part of the back of the valves muricated.— “Wallr. 117; Reich. 576; Fl. Germ. Exsic. 870! Bluff et Fingerh. 442; Koch. 609. *Atriplex portulacoides*, Linn. 1493! Sm. Eng. Bot. 261; Eng. Fl. iv. 256; Fl. Dan. tab. 1889.”

Common on the sea-shore. Perennial. August to October.

The existence of two species under the name of *H. portulacoides*, is indicated by Nees ab Esenbeck, — “the one, *borealis*, described by Roth in the ‘Flora Germanica’ and figured by Nolte in ‘Flora Danica,’ the other, *australis*, occurring in the South of France, and differing from the first in habit, in the narrower and more scaly leaves, and in the pointless calyces of the fruit.”* Mr. Babington says —

“Specimens which I possess from the south of Europe are unfortunately in much too young a state for the characters drawn from the fruit-bearing calyces (the only ones of value) to be determined. I suspect that specimens which I gathered upon Exmouth Warren, in Devonshire, in September, 1829, will prove to be this latter plant; for although the fruit, from being young, will not allow a certain conclusion to be drawn, yet, as far as I can ascertain, the calyx is totally without tubercles upon its back, and it appears to be much less rounded below than is usual in the true *H. portulacoides*.”

* * It is much to be wished that those botanists who may visit the southern coasts of Britain, would endeavour to determine the existence of the latter plant (*H. australis*) upon our shores, and also that they would turn their attention to the value of the character drawn from the muricated calyces in the genus *Halimus*.”—p. 16.

Each species is illustrated by very neatly engraved figures in outline, of the lower leaves, the leaves near the top of the stems, and the enlarged calyces of the fruit.

(To be continued).

ART. LXXIX.— *Varieties.*

179. *Additions to the List of Wharfedale Mosses.* I returned a short time since from a two days' excursion in Wharfedale. This excursion was partly a geological

* Genera Plantarum Floræ Germanicæ Iconibus Illustrata, (Monochlam.) No. 64.

one, and partly made in order to renew my acquaintance with a few of the mosses and lichens which grow in the neighbourhood of Bolton-bridge, Barden, &c. With the idea that local lists of plants often prove interesting to botanists, I now send you the following additions to the list given by Mr. Spruce, (Phytol. 197). I hope my friend Mr. S. will pardon the use of the more practical names of Leighton's Catalogue, in preference to those of Hedwig, Bridel, &c.; for would it not have been just as well understood if he had called his *Grimmia rivularis* *G. apocarpa*, var. *a. nigro-viridis*, Hooker, and for *Weissia fugax* said *W. striata*, var. *a. minor*, Hooker? For the *Weissia striata* of Hooker is *Bryum crispatum* of Dickson, *Grimmia striata* of Schrader, *Weissia Schisti* of Schwægrichen, and the *Grimmia Schisti* of the 'Flora Britannica.' Mr. Spruce may be right, but if we carry out this plan where are we to stop? for so great is the multiplication of synonymes in this department of Botany, that it has become a matter of difficulty in some cases to decide which name ought to be adopted.

<i>Mosses.</i>	<i>Bryum nutans</i>	<i>Parmelia caperata.</i>
<i>Andræa Rothii</i>	ventricosum	olivacea
<i>Phascum cuspidatum</i>	roseum	pulverulenta
alternifolium	ligulatum	<i>Sticta crocata</i>
<i>Gymnostomum rupestre</i>	punctatum	sylvatica
<i>Anietangium ciliatum</i>	rostratum	<i>Peltidea horizontalis</i>
<i>Encalypta streptocarpa</i>	<i>Leucodon sciuroides</i>	aphthosa
<i>Weissia nuda</i>	<i>Fontinalis squarrosa</i>	canina
lanceolata	<i>Hypnum complanatum</i>	rufescens
acuta	serpens	polydactyla
<i>Grimmia apocarpa</i> β . <i>striata</i>	polyanthos	<i>Borrera tenella</i>
<i>Trichostomum fasciculare</i>	sericeum	furfuracea
heterostichum	curvatum	<i>Evernia prunastri</i>
<i>Dicranum adiantoides</i>	splendens	<i>Ramalina fraxinea</i>
flexuosum	flagellare	fastigiata
β . <i>nigro-viride</i>	ruscifolium	farinacea
squarrosus	striatum	<i>Sphærophoron coralloides</i>
pellucidum	triquetrum	<i>Scyphophorus radiatus</i>
scoparium	molluscum	gracilis
β . <i>majus</i>	multiflorum	filiformis
γ . <i>fuscescens</i>	<i>Lichens.</i>	deformis
<i>Polytrichum piliferum</i>	<i>Verrucaria rupestris</i>	digitatus
alpinum	<i>Pertusaria communis</i>	<i>Opegrapha scripta</i> of <i>Lin.</i>
<i>Orthotrichum cupulatum</i>	fallax	sixteen varieties
anomalum	<i>Thelotrema lepadinum</i>	<i>Confervoideæ.</i>
affine	<i>Variolaria discoidea</i>	<i>Conferva purpurascens</i>
diaphanum	<i>Urceolaria seruposa</i>	vesicata
striatum	<i>Lecanora atra</i>	<i>Draparnaldia glomerata</i>
crispum	<i>Parella</i>	<i>Chætospora endiviæfolia</i>
pulchellum	tartarea	elegans
<i>Bryum androgynum</i>	<i>Squamaria elegans</i>	<i>Gomphonema ampullace-</i>
turbinatum	candicans	um

—*Samuel Gibson; Hebden Bridge, June 5, 1842.*

180. *Note on Carex tenella* &c. Perhaps you will allow me a little room to make a few remarks on *Carex tenella*, (Phytol. 234). Allowing that I have made some mis-

take in relying too implicitly on Schkuhr's figures, I must again say, without reference to those figures, that I am much surprized to find that after Sir W. J. Hooker has given us a description of *C. tenella* (which is verbatim from Smith), differing in every point from *C. remota*, that he should ever say "may it not be, &c." But I will just see what Sir J. E. Smith says on the subject. He first tells us that his plant is the *C. tenella* of Schk. Car. 23. t. P, p. f. 104, exclusive of *i. k. l.*: he then tells us Willdenow and Wahlenberg refer the same plant of Schkuhr to *C. loliacea*, which he says differs in having a ribbed fruit, flat on one side, &c., this he also tells us is Schkuhr's *C. gracilis*, 48. t. E. f. 24. Then he goes on to say that it appears to him that Schkuhr has drawn the ripe fruit of his *C. tenella*, fig. *i. k. l.* from a starved specimen of *C. loliacea*, (Eng. Fl. i. [iv.] 83). I shall now refer to the three figures of Schkuhr, viz. *i. k. l.* and see how far they represent a *ribbed* fruit, which is *flat on one side*. The figures *i. k. l.* I find, as I expected, to represent a *smooth* fruit, *equally convex on each side*: here again I am under the painful necessity of either becoming a critic, or, what appears to me to be much worse, of believing that the starving of *C. loliacea* would change its ribbed plano-convex fruit into fruit which is smooth, and equally convex on both sides. For my own part I can no more believe that the starving of a plant will cause all these changes in the character, than that the starving of the soil in which they grow would make it produce new plants altogether.—*Id.*

181. *Note on Sagina maritima*. Perhaps it may not be out of place here to say where my *Sagina maritima* was gathered, so far as Warrington is concerned, (Phytol. 179 and 234). My first specimens are from the late Mr. E. Hobson, gathered at Curedly Marsh, in July, 1824. I have the plant from the same locality, gathered in 1840 and 1841 by two different persons. Again, I have *Sagina maritima* gathered by Mr. G. Crozeir, three and a half miles from Runcorn Gap, nearer to Warrington. Curedly Marsh, if I am rightly informed, is three and a half miles from Warrington; Runcorn Gap is eight miles from Warrington.—*Id.*

182. *Lotus angustissimus*. I take the liberty of sending you some (I am afraid rather poor) specimens of *Lotus angustissimus*. I found them near this place in rather a rocky soil a short time ago; they were rather scarce, I found only three.—*Robert Jordan; West Teignmouth, Devon, June 21, 1842.*

183. *Monograph of the British Roses*. I wish some one of your more able correspondents would kindly publish in your admirable work 'The Phytologist,' a monograph of the genus *Rosa*, with the varieties; I think, to a beginner, it is one of the most puzzling genera that can be.—*Id.*

184. *Trifolium filiforme*. Having for several years past narrowly watched this plant, I send for insertion in your periodical, the result of my enquiries, which will not be thought superfluous, when, even in so late a work as Leighton's 'Flora of Shropshire,' this truly distinct species is passed by as a mere variety of *T. minus*, and the figure in 'English Botany,' t. 1257, which is sufficiently expressive, is not at all alluded to. I can confirm the account of this plant given in the 'English Flora' by Sir J. E. Smith, as very faithful. The *racemose* inflorescence is an unfailing character, and there are not wanting other peculiarities by which it may be known from *T. minus*, Eng. Bot. t. 1256. The two plants grow together near Warrington in several places, and I am quite satisfied that the view taken of *T. filiforme* in Hooker's 'British Flora,' and especially in Leighton's work, is erroneous. It may easily be recognized by its more truly procumbent or prostrate habit, its deep yellow almost fulvous flowers and its dark green foliage. The common stalk of the leaves is always very short, about half as long

as the stipules. The corolla does not "become tawny as the seed ripens," but turns very pale, and owing to the narrowness of the petals, and especially of the standard (which is deeply emarginate), the legume or fruit as it ripens becomes quite conspicuous; whereas in *T. minus* it is entirely covered and concealed by the faded, deflexed and scarioso standard, twice as broad as in *T. filiforme*, and furrowed. The diligent observer will find other points of difference, which I forbear to enumerate. I have sought in vain for intermediate states, and fully believe that the two species may be identified, if only a single flower of each be produced for that purpose. Your useful periodical will, I trust, raise up a host of *field-botanists*, who will put to the test all our dubious species, and point out the diagnostic characters of such as are genuine but imperfectly described. These will counteract the modern epidemic termed *hair-splitting*, which sometimes intrudes itself into your pages, and must be tolerated until persons infected with the disease have learned better. If any of your readers suspect me to have now fallen into this error, let him investigate the subject for himself. Nature will "deceive no student," if he diligently explore the volume with —

"A mind well strung and tuned
To contemplation, and within his reach,
A scene so friendly to his fav'rite task."

— *W. Wilson* ; *Warrington*, June 23, 1842.

185. *Poa maritima* and *P. distans*. These are unquestionably distinct species, but unless studied at large in their native haunts, apt to be confounded. The creeping root of *P. maritima* is not always a very obvious character. The leaves in both species seem to be equally convolute; but those of *P. maritima* are destitute of the seven prominent rough ribs found on the leaves of *P. distans*. *P. maritima* also has the branches of the panicle smooth. In favourable situations the stems are quite prostrate, yielding an abundant and heavy crop of herbage. The produce of a single root will sometimes cover a space of more than three feet in diameter.—*Id.*

186. *Potamogeton setaceum* of *Hudson*. It has long been my opinion that this plant is no other than a narrow-leaved variety of the species now called *P. oblongus*. In peat-ditches on the borders of Risley Moss, near Warrington, this plant may be seen in various states, from the normal form to one with extremely narrow (linear-lanceolate) floating leaves; but when in that state the plant is sterile. *P. oblongus* is most prolific when growing in shallow water, and its broadest leaves are produced when the plant is almost left dry. In deep water it becomes *P. setaceum* of *Hudson*. Sir J. E. Smith, in 'English Botany,' t. 1985, remarks that no one knows this plant.—*Id.*

187. *Circea alpina* and *C. lutetiana*. The first of these has each flower-stalk subtended by a bractea; while in the other species bracteas seem to be always absent.—Those who have opportunity for extended observation are requested to try the validity of this discriminative mark.—*Id.*

188. *Scleranthus perennis*. Never having seen this plant in a growing state, I offer with some hesitation the following remarks, which I trust some one will put to the test. In habit the plant seems very different from *S. annuus*; for instead of being repeatedly forked, with wide-spreading divisions and flowers in the forks of the stem, my specimens are mostly unbranched, never dichotomous, and the flowers are terminal, the leaves nearly erect and directed to one side, the whole plant having much of the habit of *Spergula nodosa*; so that if my specimens truly represent the species, they might be thus characterized:—

S. annuus. Stems dichotomous, leaves widely spreading, flowers in the forks of the stem.

S. perennis. Stems irregularly branched, leaves erect, unilateral, flowers terminal.

—*Id.*

189. *Equisetum fluviatile*. There is a large patch of *Equisetum fluviatile* at Norwood. A road leads down the hill from the neighbourhood of the Woodman Inn towards Dulwich; and a little way down the hill, on the right hand, a quantity of the soil has been dug out, so as to leave a precipitous bank; on the acclivity of this bank, and about a small pond close by, the above-named plant grows in such luxuriance as to make a very handsome appearance. The whorls of dark green leaves, rising one above the other, can only be compared to a miniature grove of pines, growing up the side of some steep mountain in Germany.—*Wm. Ilott; Bromley, Kent, July 2, 1842.*

190. *Cucubalus baccifer*, (Phytol. 255). In the margin of my copy of Ray's Synopsis, against *Cucubalus Plinii* (*C. baccifer*) a former possessor of the book has written as a habitat *Springfield, Essex*. From the colour of the ink and style of writing it is evident this entry was made soon after the Dillenian edition of the Synopsis appeared. Perhaps some of your readers, on seeing this note, will search in the neighbourhood of Springfield for this plant, which may very readily have been overlooked.—*H. O. Stephens; 78, Old Market St., Bristol, July 5, 1842.*

191. *An Hour's Botanizing among the Falls of Lawers*. I should like to call the attention of your readers for a few minutes to this spot, not so much for its botanical treasures, as for the exquisite beauty of its scenery, which is, I fear, not much known to tourists, in consequence perhaps of being overlooked in the guide-books. It is, however, well worthy of being visited by every lover of picturesque scenery who passes this way, and to the botanist it is a little Garden of Eden. The principal Falls are situated in a rocky dell embosomed in a fir-wood, a few minutes walk up from the toll-bar of Lawers. Before reaching the wood a number of beautiful little cascades occur, several of them fourteen or fifteen feet high, some of them overshadowed by graceful ash-trees, and all margined by verdure-mantled rocks glowing with bright blossoms, among which *Vicia sylvatica*, *Geranium sylvaticum* and the "foxglove's purple bells" are conspicuous. *Polypodium Phegopteris* and *Polygonum viviparum* are also here in abundance. On entering the dark wood the rocks assume a wilder aspect, the roar of water greets the ear, and we soon come upon the principal falls, which, although by no means so imposing as those of Acharn, Moness or Bruar, possess a charm peculiar to themselves. In the upper one the water takes four distinct leaps, and in the lower is precipitated through a narrow channel over a perpendicular rock about fifty or sixty feet high, into a dark and dismal-looking pool beneath. The harmonious and soothing murmur of the smaller cascades is now exchanged for the roar of the cataract, the light of the sun is almost shut out by the overhanging woods, and the rocks that rise rugged and lofty are garnished profusely by tufts of ferns, and wild flowers of varied hue. The botanist will here find in great exuberance among the moist rocks the beautiful little *Asplenium viride* and the delicate *Hymenophyllum Wilsoni*. *Hieracium paludosum* is plentiful, and *Circæa alpina*, *Alchemilla alpina*, *Oxyria reniformis*, *Melica uniflora*, *Festuca ovina*, var. *ε. vivipara*, *Melampyrum sylvaticum* and *pratense*, occur more or less abundantly. In the crevices of the rocks may be gathered *Hypnum commutatum* in fine fructification, with plenty of *Bryum turbinatum* and *ventricosum*, *Marchantia hemisphærica* and the elegant *Hypnum rufescens*. *Bryum julaceum* grows by the sides of the stream, and many others might be detected by a

little closer examination. The dell all the way up is a perfect picture-gallery of sweet little water-falls, and an hour spent in exploring their varied beauties cannot fail to be pleasantly remembered in after years. To the lover of Flora it will furnish an excellent preface to the mighty volume of Ben Lawers, of which I will say something to your readers by and bye; and the first thing he should do on reaching this snug little inn, is to enquire for the *Falls of Lawers*.—*William Gardiner, jun.; Ben Lawers Inn, July 6, 1842.*

192. *Note on the British Pyrolæ.* The “Enquiry respecting *Pyrola media*” by Mr. Simpson (Phytol. 237), is one of which I should like to see many more examples. I am persuaded the two species *P. media* and *rotundifolia* are often confounded: with regard to the latter Hooker observes—“Yorkshire and many places in Scotland are assigned as stations for this plant; but it is so often confounded with the two following species (*media* and *minor*), that I cannot quote them with equal certainty.” From what I have seen of *Pyrola minor* in its living state, I should think that no one could confound it with *P. media*. The rose-coloured, pink or nearly white, and much smaller flowers, and its short style and broad stigma *without* erect points, serve at once to distinguish it. *Pyrola media* is a much stouter plant, with larger flowers, which are generally whitish, sometimes tinged with pink or rose, and a protruding style, which is almost invariably deflexed and slightly curved, seldom quite straight: the stigma is rightly described as having “five erect points.” I have never seen living specimens in flower of *Pyrola rotundifolia*, and therefore cannot speak so confidently with regard to its being distinct from *P. media*: from the dried specimens in my possession I can however say that the remarkable curvature of the style, which is considerably longer than that of *P. media*, seems to me to render the difference between the two very visible, even at first sight. With respect to the leaves I think it is next to impossible for the most acute observer to distinguish between the three species above named, until they are in flower. *Pyrola secunda* is a very distinct species; its ovate and serrated leaves and “greenish white” second flowers, which do not spread themselves open like those of the other *Pyrolas*, render the plant at once distinguishable. *Pyrola uniflora*, now separated from the genus and named *Moneses grandiflora*, I have never seen except in a dried state: for many years it has not appeared in the two stations near Brodie House; the other station in Moray I have not visited. With respect to the distribution of the *Pyrolæ* in the only localities with which I am particularly acquainted, I may mention that in my opinion *P. minor* is the most extensively distributed within the county of Moray, and next to it *P. media*. *P. secunda* is rather local. In *this* district, or rather in the small part of it which I have examined, the two species *media* and *minor* are equally and rather abundantly distributed; while I have not been able to detect more than a single patch of *P. secunda*, containing about twelve or twenty specimens, and not in flower this season. The only station in which I have had an opportunity of seeing *P. rotundifolia* is that mentioned in the ‘Collectanea for a Flora of Moray.’ This I visited in July, 1834; the plant was not then in flower. By the way I would observe that the *Pyrolæ* in general seem to flower during the months of June and July, not of July and August, as is generally stated. They grow best in shady places, but *Pyrola media* is often found in heathy ground, and there it flowers earlier, and the flowers assume a whiter hue, tinged with more of pink or rose-colour.—*James B. Brichan; Manse of Banchory, July 7, 1842.*

193. *Rhinanthus major* and *Crista-galli*. Some years ago having heard doubts expressed respecting the existence of a real specific distinction between the two species

of *Rhinanthus* found in Britain, although I had no doubt of their being really distinct, I examined rather minutely a number of living specimens, and the following was the result of that examination.

Rhinanthus major.

Whole plant often immensely larger than *Crista-galli*, generally more branched; sometimes smaller and not branched, but in every state preserving its characteristics. *Branches* often numerous, nearly erect.

Calyx equal to the tube of corolla.

Corolla twice as long as calyx; bright yellow, segments of upper lip purple, and a single spot of purple on each of the side lobes of the lower lip: closed, with segments of upper lip connivent.

Style almost always exserted, sometimes the sixth of an inch.

Capsule smaller, seeds fewer, with one side thicker, and a narrow margin; when fully formed bursting the skin at the thicker side.

To the above observations I may add that the *tout ensemble* of *R. major* is very different from that of *R. Crista-galli*, I mean in so far as appearance is concerned. I have seen both plants growing together, and think no one who could see them growing would consider them to belong to the same species: when dried they become quite black. *Rhinanthus major* may be said to be rather common in the counties of Moray and Nairn, at least on the coast. In the former county I have seen it growing on an eminence at the height of about 200 feet above the sea, and apparently aspiring still higher, in defiance of *Ulex europæus* and other well armed and stubborn shrubs. Its locality however is in corn and grass fields, where its abundance, its size, and the profusion of its bright yellow flowers, render it very conspicuous. There seems to be little reason to doubt that in Scotland at least it is not indigenous.—*Id.*

194. *Schistostega pennata.* I enclose a few specimens of *Schistostega pennata*, which I gathered last month in Nottingham forest, where it almost completely covers the roof of a dry sandstone cave. I found specimens in all stages of fructification, and think, from the situation in which it grew that there must be a constant succession in fruit. I possess specimens gathered by Dr. Howitt in the month of November.—*Joseph Sidebotham*; 26, York St., Manchester, July 7, 1842.

195. *Notes on the supposed parasitism of Monotropa Hypopitys.* It is under feelings of most unaffected diffidence that I venture to publish my notes on this subject, more especially as I find them at variance with the recorded observations of botanists so much more able to grapple with the question than myself. Still, having most unexpectedly become possessed of some luxuriant specimens of this interesting plant, I could not forego the opportunity of investigating for myself this *quæstio vexata*, and I now offer the results to the readers of 'The Phytologist.' The plants were four in number; each had two or more stems, about seven inches in height, bent over at the top and in full flower, a few young stems were ascending in a perfectly erect position.

Rhinanthus Crista-galli.

Branches few, nearly horizontal.

Calyx longer than the tube of corolla.

Corolla not much longer than calyx; yellow, variously spotted with purple: open, with segments of upper lip divaricate and somewhat revolute.

Style included.

Capsule larger, seeds more numerous, of uniform thickness, with a broad margin.

The flowers had a scarcely perceptible scent, but the stem when broken smelled exactly like a raw potato. Each plant had been dug up with care, and was accompanied by a large ball of chalky earth, the surface-mould being abundantly intermixed with fragments of the cones of spruce and larch firs, and the leaves of spruce fir, birch and whitethorn, all in a state of decay. Each mass was permeated by roots, the majority of which were also decayed, but some few of them were still living, and I made them out to be those of a fir, a *Hieracium* and a scabious. I separated the earth from each mass with great care; the roots of the plants above mentioned falling from the mass as soon as the removal of the earth permitted of their doing so; and although, from the multiplicity of fibres, many of them had obviously been in immediate contact with the *Monotropa*, there appeared to be nothing like adhesion; and in no instance that I could detect was any portion of either of the roots contorted, swollen, shrunk or altered in appearance by the proximity of the *Monotropa*. In order to satisfy myself fully on this head, I subjected each detached root to a lengthened and tedious examination under a lens. Having cleared the *Monotropa* from extraneous substances, I next subjected the plant itself to a rigid scrutiny. It appeared to me to consist of three parts, somewhat analogous to the frond, rhizoma and roots of ferns. The rhizoma or underground stem was fleshy, brittle, succulent and branched: the branches were thickly clustered, the termination or growing extremity of each being always obtuse: scattered at intervals over the surface of the rhizomata were the gemmæ or buds destined to become fronds or ascending flower-stalks; on making a longitudinal section of one of these, the scales of the future frond were observable, neatly packed one within the other. Those portions of the rhizoma on which these gemmæ were most observable, were usually more detached than the rest; and it appears that when a frond begins to ascend, an active formation of rhizomata commences from the same point, shortly forming a dense cluster somewhat difficult of examination. Closely investing every part of these rhizomata except the growing extremities, which, for a short space, are invariably naked, I found the byssoïd substance which Mr. Wilson has suggested may be the "woolly matted extremities of grasses," (*Phytol.* 149); this substance I believe to be an intrinsic and most essential portion of the *Monotropa*, and is the part to which I have applied the term *root*. My reasons for supposing it a part of the *Monotropa* are these:—1st. Its *constant* presence; a "byssoïd fungus" (*Phytol.* 43), "the woolly matted extremities of grasses" (*Phytol.* 149), or any other extraneous matter, would of necessity be irregular in its appearance. 2ndly. The uniformity of its growth; the larger end of each fibre being invariably attached to the rhizoma; the branching, which is frequent, taking place at angles which are uniform among themselves, and follow the normal mode in other roots; and the distal extremities being extremely minute. 3rdly. Because on viewing a thin transverse slice of the rhizoma under a high power, the substance of the rhizoma and that of the roots appeared perfectly continuous and identical. 4thly. That when these fibres were forcibly detached at their origin, a manifest rupture of the cuticle of the rhizoma took place. These roots, for such I must consider them, spread freely over every substance within their reach. In many instances I found them forming a beautifully reticulated covering to the fragments of decaying fir-cones and leaves, and also in the fissures occasionally occurring in nodules of chalk. Sometimes they appeared closely investing the extraneous roots, but it is worthy of notice that I generally found these completely decayed: not simply shrivelled as by the exhausting power of a parasite, but in that state of decay in which a slight touch of the forceps would cause immediate separa-

tion. In many instances, when the *Monotropa* roots were purposely separated from the decayed roots, leaves, or portions of cone, their extremities remained attached to these extraneous substances. The proportion of *living* roots to which the fibrous extremities of the *Monotropa* roots had found their way was small as compared with that of those in a state of decay, yet such instances did occur; and although I used every endeavour to make out a decided continuity between the roots of the *Monotropa* and those of its supposed supporter, I relinquished the search without any proof that this occasional contact between the living roots was a matter of choice, or by any means essential to the vitality or well-being of the *Monotropa*. In candour it should further be remarked that in some instances the connexion between these byssoid fibres and the *Monotropa* was not fully made out; the more beautiful examples occurring on fragments detached from the mass before the superincumbent network had been observed; yet between attached and unattached fibres I detected no difference. The conclusions at which I have arrived as to the true nature of the byssoid covering of the rhizoma having been drawn from observations made with what might be considered, in the present day, an imperfect instrument, I obtained the kind assistance of Mr. E. J. Quekett, and by means of his superior microscope and able manipulation, the opinion which I had previously formed of the fibres became fully established.

It is, I believe, generally admitted that many species of ferns derive part of their food through the decaying portions of the bark and wood of trees to which their rhizomata are appressed: if this be strictly parasitism, then I think it will not be difficult to prove a like parasitism in the plant now under consideration. If, on the other hand, we are to understand by the word parasitism that one plant extracts the living juices of another *by immediate contact and positive adhesion*, as in the case of the dodder and mistletoe, or, as suggested by Mr. Lees in the case of *Monotropa*, by means of "hairy vesicular knobs seated on and of necessity nourished by the radical fibres of" another plant, (Phytol. 99), then I must confess that I met with nothing to induce such a conclusion.—*Edward Newman; Peckham, July 8, 1842.*

196. *New locality for Carex clandestina.* I am permitted by my brother-in-law, the Rev. Thomas Butler, of Langar, Notts., to state that on visiting Brean Down, Weston-super-Mare, in May last, he discovered *Carex clandestina* growing abundantly over the hill, in the same places with *Helianthemum polifolium* and *Iris foetidissima*. I say *discovered*, because I have never seen any locality quoted for *C. clandestina* but that of St. Vincent's Rocks. The addition of a second station for so rare a plant, seems a fact of much interest.—*A. Worsley; Brislington, July 12, 1842.*

197. *Carex axillaris* and *C. remota.* These two species are readily distinguished from each other, as *C. vesicaria* is from *C. ampullacea*, by the structure of the culm or stem and leaves. In *C. axillaris* (and in *vesicaria*) the stem has three acute angles and the leaves are flattened: in the other two the stem is nearly round, and the leaves are bent at the sides so as to be almost semicylindrical. The bractees of *C. axillaris* are by no means constant in their length; in one of my Cheshire specimens the lowest bractea scarcely overtops the spikelet to which it is attached; while in one gathered by John Martin in this county, it is twice as long as the spike. In this species, however, the second bractea is always very small compared with the lower one, having a membranous base much resembling the glumes in size and shape, the upper part rough, very narrow and awn-like. All the bractees are auricled at the base; while those of *C. remota*, instead of auricles, have generally a pale very obscure ligule, passing completely round the rachis or common stalk of the spike, where a striking feature

exists:—*It is zigzag*, with only two rough edges, taking a fresh direction at each joint, as if pushed aside by the spikelet and its bractea; in *C. axillaris* the rachis is perfectly straight, and has three rough edges. The glumes in *C. axillaris* are roundish ovate (not acuminate), tipped with a very short rough point or continuation of the midrib; they are larger and whiter than those of *C. remota*, which are *ovate-acuminate* and narrower than the fruit. The lowest spikelet is generally compound in *C. axillaris*; but I have never seen it so in *C. remota*. With the ripe fruit of *C. axillaris* I am not yet acquainted; but from what I can judge of it in an immature stage it must be narrower than the glumes, and the ribs on the outer side must be essentially different from those of *C. remota*. I fear your correspondent (Phytol. 263) has another object in view, besides asking for information. He seems to have a particular fancy for severe criticism, and I am really surprized that he should advance the strange opinion that Dr. Goodenough was “not a very close observer of the Carices.” The passage alluded to only shows that he had not at that time fully investigated the subject. It is surely sufficient for us to rectify the casual mistakes of our predecessors, without robbing them of their due meed of praise. Again, Mr. G. should be careful to quote accurately; and it is hardly fair to quote at all the first edition of Hooker’s ‘British Flora,’ when in the second and subsequent editions the mistake has been corrected. In the second edition *Carex axillaris* is thus described:—“lower bractea long, the rest scarcely so long as the spike.” The criticism unfairly represents that author as standing alone in the statement that *C. axillaris* is a taller plant than *C. remota*. Smith, in different language, says the same, namely, that *C. axillaris* is “larger” than *remota*. I quite agree that comment on this point is needless; and, as a comment, the superadded remark about the size of *C. remota* is inconclusive and misplaced. If Sir J. E. Smith were living, he would much disapprove of the use made of the other passage *misquoted* by Mr. G.—Smith, no doubt, had in mind what Goodenough had said of the “entire capsule” of *C. remota*, and was desirous of correcting the mistake, in language and in a spirit well worthy of imitation by all critics. He therefore mildly says of *C. axillaris*:—“beak more deeply cloven PERHAPS than that of *C. remota*, though this difference is not very striking.” Mr. G. omits the important word “perhaps,” and thus reduces the passage to sheer nonsense. This is not the way to deal with an author, nor the way to derive (much less to communicate) instruction. Mr. G.’s real difficulty in distinguishing *C. axillaris* from *C. remota* arises from his never having seen it. As for the descriptions in the two works quoted, they are not so defective that specimens actually in my possession might not, if taken singly, justify either of them. I cannot see the utility of alluding to the “good authority” of the source whence Mr. G. has received *C. paniculata* under the name of *C. axillaris*. If any *competent* botanist has thus sent it, he must have done so through mere inadvertence; and I do not think the *kind intention* of the donor is well requited by the public and somewhat sarcastic announcement of his error.—*W. Wilson; Warrington, July 15, 1842.*

198. *Description of Carex axillaris*, (Phytol. 263). Root creeping, *not caespitose* (which in *C. remota* it certainly is), growing in a more scattered and isolated manner than *C. remota*, quite as much so as *C. teretiuscula* compared with *C. paniculata*.—Stem from eighteen inches to two feet or more in height, rigid, comparatively robust and acutely triangular (its angles rough), strongly striated, nearly erect and straight. Leaves arising from the lower part of the stem, which they enclose in their sheathing bases, linear, plane, though channelled on their upper surface, striated, of a bright light green colour, more than twice the breadth of those of *C. remota*, slightly keeled

on the back, the edges of their lower half smooth, of the superior part rough, about equalling the stem in height, gradually narrowing into slender, rough points. Lower bractea foliaceous, rigid like the leaves, *erect*, forming as it were a continuation of the stem as regards its direction, generally taller than the spike, though very variable in this respect; the *second and superior* bracteas *remarkably short and diminutive*, nearly wanting in the upper spikelets, their bases expanded, then suddenly contracting and assuming an awn-like or capillary aspect; all the bracteas have evident auricles.—Spike two or three inches long, of from six to twelve ovate-lanceolate spikelets; the upper spikelets simple and remarkably crowded, those in the lower part more remote, and the lowest of all almost always *compound*; sometimes there are two or more compound spikelets on the same spike, especially in robust plants, their common rachis straight and triangular. Scales membranaceous, of a brownish white colour, broadly ovate, equalling the fruit in breadth but not in length, bluntish, with a strong prominent green central rib or keel, which extends beyond their apex, forming a distinct and very evident mucro. Fruit ovate, ribbed, with a rather broad, straight, cloven beak. Those who doubt the specific difference of this plant from *Carex remota*, do so, I feel persuaded, from not having had a sufficient opportunity of contrasting the two plants in a living state. I feel satisfied that no one who has ever witnessed, as I have done, these two species growing within a few inches of each other, and preserving unaltered their peculiar characteristic features, could be longer sceptical on this point. Their *habit* is strikingly different, so much so as to impress upon the mind at once (without the necessity of having recourse to minute anatomical differences) the conviction that they must be essentially different plants. The distinct and separate mode of growth of *C. axillaris*, its robust, rigid, and nearly erect triangular stems, its broader, plane and channelled foliage, the remarkable disposition and comparative length of its bracteas, its more numerous and larger spikelets, and their aggregation at the summit of the spike, are differences, I should think, amply sufficient to enable any one to distinguish it, *when seen*, from *C. remota*, and to satisfy any mind that is open to conviction, and willing to acknowledge the truth of facts so plainly manifest to the most careless observer of the beautiful works of creation.—*J. B. Wood, M.D.; Broughton, Manchester, July 19, 1842.*

199. *Love of Nature.* Ah! it is the love of nature that burns within our bosoms; the instinctive admiration of those woods, dark in shadow or hallowed by the coloured Iris; those cliffs now lit up in gold, or gray in twilight; those ravines whose depths are hidden in foliage, and into which the river plunges with sullen roar; those landscapes with all their waters and all their inhabitants, that, solemnly robed in the mists of morning, or splendidly revealed before the setting sun of evening, with all their associations, and all the thoughts and reflections they create and absorb, that charm, enchant, and enchain us. Whatever our avocations may be, whatever may be the object or the pretence with which we set out, when once under the open canopy of heaven, we are *free*; that machinery spreads before us in its simplicity and complexity, which requires no sighs, groans or anguish to keep up its movements; and that pure brisk air which the country only knows, is in motion to fan our foreheads, fill our lungs and excite us to hope, thought and inspiration!—*Edwin Lees' 'Botanical Looker-out among the Wild Flowers of the Fields, Woods and Mountains of England and Wales.'**

* Being obliged to defer a regular notice of this pleasant work, we have given a few extracts from the month of August.

200. *The Heaths.* Now it is that the different species of heaths (*Erica*) appear in their perfection of beauty, making glad the wilderness wherever they present themselves. Sandstone cliffs are empurpled with the flowers of the *Erica cinerea*, which often, too, covers the sides of mountains to a considerable height; while, wherever a weeping spring oozes upon the waste, the pale wax-like bells of the *Erica Tetralix* droop in clusters to the ground. Sir Walter Scott has finely depicted in *Marmion*, a sun-rise in a mountainous country, when the heath was in flower, and the first golden rays fell upon the mountains —

“And as each heathy top they kiss’d
It gleam’d a purple amethyst.”

* * But the mountain heather of the Scotch poets, which gives such a black aspect to the bleak hills of Scotland, is the ling, or common heath (*Calluna vulgaris*), whose calyx, as well as corolla, is coloured; and whose elegant attire, generally diffused as it is in Europe, deserves every encomium it has received. When in full flower, nothing can exceed the beauty presented by a near prospect of hills of blooming heather, while they offer to the way-worn wanderer a fragrant couch, on which he may recline in luscious idleness, and obtain “divine oblivion of low-thoughted care.” From the extent of moorland in Scotland, that country has been generally distinguished as the “land of brown heath,” and the clans of McDonald and McAlister bear two of the species as their device: hence clouds, storms, and impending dreary rocks, are images that unconsciously arise in our minds, when referring to the heather bells; and a modern writer, when descanting upon the “moral of flowers,” has exclaimed —

“Since I’ve view’d thee afar in thine own Highland dwelling,
There are spells clinging round thee I knew not before;
For to fancy’s rapt ear dost thou ever seem telling
Of the pine-crested rock and the cataract’s roar.” — *Id.*

201. *The White Water-lily.* As the rose is the queen of the bower, so undoubtedly is the lily the empress of the lake, and I have only done my duty in thus testifying my admiration, as far as she is concerned; but I have merely sketched her figure as she reclines upon her liquid throne, realizing her poetical Indian name “Cumada,” or “Delight of the Waters;” but there seems something so emblematical of *purity* about this lovely plant, that the warning of Shakspeare not to paint it is singularly appropriate, and I shall not soil the fair petals of the flower by touching farther upon it.—*Id.*

202. *Wild Flowers of August.* Summer! ah, where has summer been this year? is often a common exclamation at its close; for in ungenial years scarcely have we been able to obtain a glimpse of it, before it is already perceived waning away. Fine or wet, the flowers spring and fade, and the profusion of composite or syngenesious ones now perceptible, gives serious warning that the summer is declining and the days shortening. On the river side the tansy (*Tanacetum vulgare*) spreads its golden disk, gilding the bank; the hawkweeds muster numerous on the walls; the bristly-leaved *Pieris echinoides*, and grove hawkweed (*Hieracium sabaudum*), in the woods; other species appear throwing a golden hue upon the aftermath of meadows, or limestone banks; and the fleabane (*Inula dysenterica*) opens its specious disk upon the last days of August. Other signs are, alas! not wanting — the berries of the mountain-ash are flushed; those of the water Guelder-rose (*Viburnum Opulus*), and the *Rhamnus Frangula*, show their crimson beauties impending above the deep-flowing streams; the willow-herbs (*Epilobium*) empurple the beds of rivulets and wet ditches, and the mints

are beginning to blossom. Now the great mullein or hag-taper (*Verbascum Thapsus*) shows its "flannel leaves" and lofty spike of yellow flowers in perfection, like a huge torch in the dusk of evening; and others of the same species flash gloriously by waysides or gardens. In certain spots the tall dyer's weed (*Reseda luteola*) is very conspicuous, and the starry scabious (*Scabiosa arvensis*) lifts its flowers of regal purple high in air. The little centaury (*Chironia Centaurea*) named from Chiron the centaur, about this time adorns many a bank with its bright pink flowers; and the hedges are over-run with the ramping fumitory, the brilliant violet clusters of the tufted vetch (*Vicia Cracca*), the pink flowers of the everlasting pea (*Lathyrus sylvestris*), and the conspicuous white bells of the great convolvulus (*Convolvulus sepium*).—*Id.*

ART. LXXX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

July 14, 1842. — This Society held its last meeting for the season in the Botanic Garden, Professor Graham in the chair. Various donations were presented to the herbarium and library: — from Mr. Loudon, plants collected in the South Sea Islands by the late Mr. Corson, surgeon; from Miss Ferguson, seeds collected by her father in Sierra Leone; a box of plants from the Mediterranean, collected by Edward Forbes, Esq., and volumes of important works from Dr. Muller of Emmerwick, on the Rhine, David Steuart, Esq., Edinburgh, and the Leopoldine Academy of Breslau. Thanks were ordered to be returned to the several donors, and Dr. Muller was unanimously elected a foreign member of the Society.

The corresponding Secretary read a statement of the plants which had been contributed during the season, amounting, on a rough estimate, to 5,000 species, and 25,000 specimens, many of which are rare and otherwise interesting, and he expressed his gratification in being enabled to say that they were generally much better preserved than the contributions of former years.

Professor Graham next exhibited to the Society a number of rare and beautiful plants which had recently come into flower in the green-houses; most of the gentlemen present thereafter accompanied the professor in a walk through the garden and greenhouses, and particularly to inspect a magnificent specimen of *Caryota urens*, which was a few days ago removed from the large green-house to the open border at the north end of the range. This magnificent palm was raised in the garden from seed brought from Calcutta about twenty-seven years ago, and has now attained a height of above forty-five feet, which rendered its removal necessary, as the house could no longer contain it. It is still comparatively uninjured, but will doubtless soon fall a victim to the cold and rough weather of our climate. The public should therefore not miss this rare opportunity of seeing a tropical palm growing luxuriantly in a Scottish garden — especially as it is much the finest specimen of the kind in Britain, if not in Europe. The heaths and many other green-house plants are at present in a beautiful state, and well worthy of a visit, — nor could the garden generally exhibit a more agreeable aspect than it now does.

The various papers on the list were deferred till next session. — *From 'The Edinburgh Evening Post and Scottish Standard,' Saturday, July 16, 1842.*

[The following list of papers deferred may be interesting to some of our readers. *Ed.*]

1. Remarks on the Assam Tea-plant, with specimens. *By Professor Christison.*
2. Some remarks on the state of Vegetation in Jersey, in March, 1842. *By Professor Graham.*
3. Report on Vegetables parasitic on living animals. *By Mr. John Goodsir, Conservator of the Museum of the Royal College of Surgeons.*
4. On the characters of the British Violets. *By Mr. C. C. Babington.*
5. On the nomenclature of British Plants, and the authority upon which several species have been introduced into the Society's Catalogue. *By Mr. C. C. Babington.*
6. Remarks on the British species of *Cerastium*. *By Mr. Edmonston.*

BOTANICAL SOCIETY OF LONDON.

July 1st, 1842. — J. E. Gray, Esq. F.R.S. &c., President, in the chair. The following donations were announced: — British plants from Lady Sophia Windham and Mr. F. Robins, and British mosses from Mr. I. T. Hollings and Mr. H. Ibbotson. — Donations to the library were announced from the Imperial Academy of Sciences, St. Petersburg, the American Philosophical Society, the American Academy of Sciences Philadelphia, and the Rev. A. Bloxam. Various specimens of plants, sections of wood &c. purchased at the sale of the Botanical Museum of the late A. B. Lambert, Esq., were presented by some of the members.

Mr. Arthur Henfrey (Curator) exhibited a monstrous specimen of *Scrophularia aquatica* (which is now in the Society's Museum), found by him on the 30th of June last, on an island in the Thames above Teddington. The plant was about three feet high, having a flat ribband-like stem rather more than half an inch broad, and scarcely an eighth thick. The flower-stalks grew chiefly out of the flat surfaces, nearly perpendicular to them, a very few only being at the edges, and not in any regular order. These flowering stalks extended over about eighteen inches of the stem, being about forty in number, exclusive of a very dense cluster at the summit of the plant. The flowers all appeared perfect, and the peculiarity of growth seemed to have resulted from a natural grafting of two plants. Mr. George Dickie presented specimens of *Gelidium rostratum* (Harvey), collected by him at Aberdeen. Specimens of *Lastræa cristata* (Presl), collected at Holt, Norfolk, were presented by the Botanical Society of Holt; and Mr. R. Phillips presented some seeds from the Cape of Good Hope. Mr. Thomas Sansom exhibited a monstrous specimen of *Cynoglossum Omphalodes* (Linn.) in which three peduncles were united longitudinally from the base to the extremity, and terminated by *two* calyces, the first being 6-partite, bearing a corolla of six segments, *five* stamens, one pistil and four seeds. The second was 9-partite, formed by the union of *two* calyces, respectively 4 and 5-partite, bearing two distinct petals placed side by side, each 5-lobed, each with five stamens, and each containing a pistil and a set of four seeds. Mr. S. also exhibited a specimen of *Galeobdolon luteum* (Sm.) in which the terminal petal was salver-shaped and 5-lobed; stamens four.

A paper was read by Mr. T. Sansom, being Notes of the first Excursion of the Members of the Society into Kent in June last; containing the habitats of the rarer species of flowering plants, and also notes on the most interesting specimens collected. — *G. E. D.*

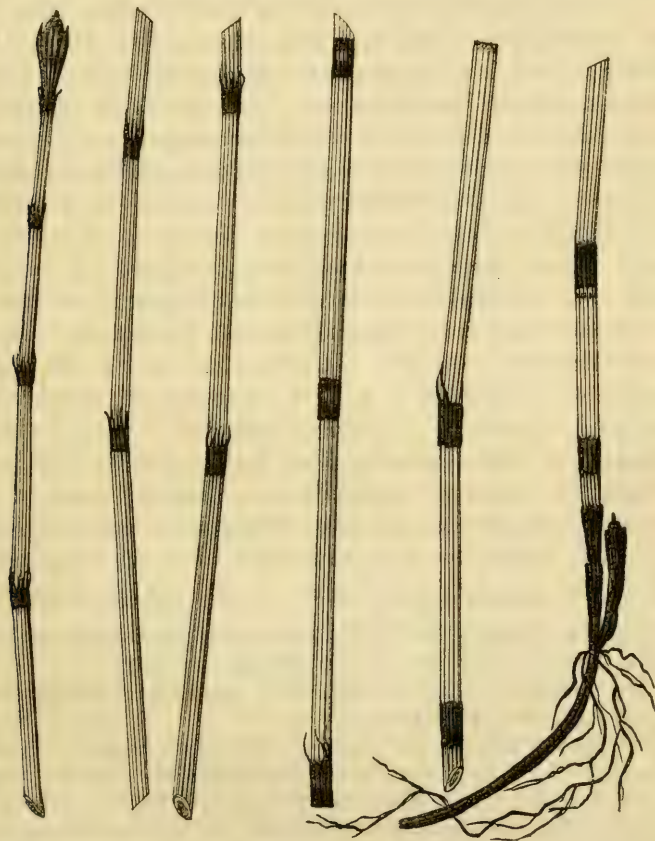
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ART. LXXXI. — *A History of the British Equiseta.* By EDWARD
NEWMAN. (Continued from p. 278).



MACKAY'S SHAVE-GRASS.

EQUISETUM HYEMALE, β . MACKAY,* *Newman.*

* Named after the original discoverer, Mr. J. T. Mackay, of Dublin.

THIS plant occurs in the North of Ireland, more particularly in the counties Derry and Antrim. It was originally discovered in the year 1833, by Mr. Mackay, the well-known author of the 'Flora Hibernica,' when in company with Mr. Whitla, in Colin Glen, near Belfast. Subsequently to this date it has been repeatedly observed by different botanists: Mr. Moore, the talented and energetic conservator of the Dublin Glasnevin Garden, to whom I am indebted for a supply of both recent and dried specimens, has found it in many of the glens in the northern counties, particularly in Ballekavregan Glen (Derry), and in the wild deep ravines emphatically called "The Glens" (Antrim). In Scotland it was first discovered in 1841, on the banks and "in what is usually called the bed of the river" Dee, in Aberdeenshire, by the Rev. Mr. Brichan, to whose kindness I am also indebted for specimens.

Its discovery caused a multiplicity of correspondence among botanists, some maintaining that it was merely an elongate and exuberant form of *Equisetum variegatum*; others that it was a good species, perfectly distinct from any which had been previously recorded as British. The matter rested thus until the question was referred to Sir W. J. Hooker, and that illustrious botanist decided not only in favor of its distinctness as a species, but pronounced it to be the *Equisetum elongatum* of Willdenow, (see 'London Journal of Botany,' 42, and Phytol. 174). Feeling as I do the difficulty under which I shall labour in venturing to differ from so high an authority as Sir William Hooker, I must still record my opinion that the plant before me is not identical with the *Equis. elongatum* of Willdenow* and Reichenbach,† the essential characters of which appear to be that it has *verticillate* and *6-angled* branches, and that the sheaths are *hoary green*, conco-

* *Equisetum elongatum*, W. E. caulibus subduplicato-ramosis, ramis subternis scabriusculis sexsulcatis, dentibus vaginarum membranaceis, W.

E. (*ramosissimum*), caule striato ramosissimo, ramis virgatis striatis erectis verticillatis, apice floriferis. Desf. Atl. ii. p. 3982.

Caulis tripedalis et altior quasi scandens, subduplicato ramosus, profundè striatus, scabriusculus. Rami terni, superiores simplices semipedales usque ferè pedales, inferiores iterum ramosi, ramulis suboppositis sexsulcatis. Vaginæ concolores dentatæ, dentibus albis, diaphanis, aristatis, aristis caducis. Ab omnibus mihi cognitis abundè diversum. *Equisetum ramosissimum* Clariss. Desfontaines non differre videtur. Willdenow, Sp. Pl. v. 8.

† E. *elongatum*, W. caule ramulisque sexangularibus longissimis superioribus spiciferis, spica mucronata, vaginis concoloribus (cano-viridibus), dentibus persistentibus albis vix puncto sphacelatis cartilagineis, in acumen quasi fimbriam longissimam hyalinam flaccidam deciduam productis.

Hyemale, β. procerum Pollin et omnino vix recedere video.

Quadripedale et altius quasi scandens ramuli ultra pedales. Flor. Germ. Exc. 155.

lorous with the internodes: I have faithfully transcribed both of the original descriptions. Moreover, on consulting Professor Vaucher's 'Monographie des Prêles,' published in the first volume of the 'Mémoires de la Société de Physique, etc. de Genève,' I find that learned author has not only described at length but figured (Pl. VI.) Willdenow's plant under Desfontaine's prior name of *Equisetum ramosissimum*: the subduplicato-ramose and verticillate characters of the stem as well as the concolorous sheaths are well represented. Vaucher gives the appropriate name of *Equisetum multiforme* to a species which appears to include the variegatum of Schleicher's Catalogue and various other forms, among these the present plant is not distinctly characterized: his β . *Equisetum multiforme ramosum*, which, in other respects, comes the nearest, having the sheaths differently coloured. — His description of this variety is quoted below.*

This author, in his introductory remarks on the genus, aptly cites this species as an instance of characteristic liability to variation. After mentioning that the *Equiseta* generally occur on the banks of streams and in damp places, as well as in the water, he says they are occasionally "even met with in sandy places that are not watery, such is the case with *Equisetum multiforme*: this species appears strongly influenced by the properties of the soil in which it grows, for sometimes it throws out but a small number of slender and short branches, at other times, on the contrary, and especially when in a more fertile soil, we find issuing from the principal stem branches not only much longer but much more divided, so much so indeed that it has been thought it could not then be referred to the same species."†

* β . *Equisetum multiforme ramosum*. Prêle multiforme rameuse. Cette seconde variété est peu connue des Botanistes quoiqu'elle soit assez répandue; elle émet de sa racine plusieurs tiges courtes semblables à celles de la variété α . dont les gaines sont plus ou moins noirâtres; mais on y observe encore une ou plusieurs tiges principales, qui peuvent s'élever jusqu'à trois pieds et qui sont terminées par un épi plus grand que celui de la variété α . Les gaines sont amples, assez lâches, blanches ou brunes, mais rarement noires; les rameaux sont assez nombreux, plus ou moins réguliers, et quelquefois prolifères. Cette variété β . se trouve souvent réunie à la première, et l'on peut facilement observer des échantillons qui présentent toutes les nuances intermédiaires. Ordinairement la Prêle rameuse se rencontre dans des terrains plus riches et plus favorables à la végétation. — 'Mémoires de la Société de Physique et d'Histoire Naturelle de Genève.' i. 379.

† On en rencontre même dans les terrains sablonneux et non humectés, comme par exemple la Prêle multiforme; mais cette dernière espèce paroît être fortement influencée par la nature du terrain dans laquelle elle croît, car tantôt elle ne développe qu'un petit nombre de tiges grêles et fort courtes, tantôt au contraire, et surtout lorsqu'elle sort d'un terrain plus riche, on voit sortir de la touffe principale des tiges beau-

The roots and rhizoma present no characters by which I can distinguish this plant from that previously described as the normal form of the species: they are both black, the roots being tortuous, much divided, and often clothed with minute and matted fibrillæ: the stems are very long, generally erect, nearly straight, and jointed as in the former species; the figure shows a perfect stem divided into six por-



tions, its size and the relative length of the internodes having been copied with scrupulous accuracy. Both the internodes and sheaths are striated; the striæ vary in number from eight to twelve, or even fourteen. The stem is hollow, with the exception of the transverse septa occurring at the sheaths. Instead of being uniformly simple, as represented in the figure at the head of this article, it is often sparingly branched, as shown in the left hand figure; the branches rise singly from below one of the sheaths, and a stem often bears two or three such branches, the branches themselves also occasionally emit other branches in the same way, the plant, in that case, being very luxuriant, and attaining a height of three to four feet: the right hand figure is a diagram showing the mode of branching. Under the microscope the structure of the stem appears precisely identical with that of *E. hyemale*; the double row of elevations on each of the ridges, with their cup-shaped depressions in the centre,

are exactly as I have already described them, (*Phytol.* 278). The sheaths are generally black, the central part sometimes white, but scarcely ever so distinctly banded as in *hyemale*: the teeth are very long, flexuous and setiform; their edges at the base are dilated, membranous, somewhat whitish, and nearly transparent; they are partially but not so decidedly deciduous as in the normal form of *hyemale*. The catkin is small, nearly black, apiculate, terminal, and striated as in *hyemale*: the scales are about thirty in number.

EDWARD NEWMAN.

(To be continued).

ART. LXXXII. — *On the authority upon which several Plants have been introduced into the 'Catalogue of British Plants' published by the Botanical Society at Edinburgh.* By CHARLES C. BABINGTON, Esq., M.A., F.L.S., &c.

1. *Alchimilla conjuncta*, Bab. MSS. *A. argentea*, G. Don, MSS. in *Borr. Herb.*, *Trevelyan in Edinb. New Philos. Journ.* 1835, not *Lam. Enc. i.* 77.

Gathered by the late Mr. G. Don on the Clova Mountains, as I learn from an original wild specimen in Mr. Borrer's herbarium. As the name originally applied to this plant by Mr. Don (but not published) had been previously employed by Lamarck for another plant, it has become necessary, in order to avoid confusion, to give a new name to this species.

Closely allied to *A. alpina*, but usually much larger in all its parts, and distinguished by its leaflets not being separated down to their base, broader, more silky on the under side, and so placed that in the radical leaves the two external leaflets almost, if not quite, touch each other.

2. *Alyssum calycinum* has maintained itself for several years on uncultivated spots in Scotland, and is therefore possibly a true native of that country, although an introduced plant in England. See Eng. Bot. Suppl.

3. *Betula glutinosa*. This is the more common species in the northern parts of Scotland.

4. *Bunium Bulbocastanum*. Plentiful in the chalky fields of Hertfordshire and Cambridgeshire. See Eng. Bot. Suppl.

5. *Carex irrigua*. I have gathered this plant upon Muckle Moss, Northumberland. It is distinguished from *C. limosa* by having flat leaves, with their margins scabrous only near the end, usually three female spikes, fruit without striæ, and the scales of the catkins without the longitudinal green band which is seen in that species. This plant is well figured in Hoppe's 'Caricologia Germanica.' It was first noticed in the above station by Mr. John Thompson, of Crow Hall Mill, near Ridley Hall, Northumberland.

6. *Centranthus Calcitrapa*. This has but slender claims to be considered as a British plant, as it has only been found in a naturalized state at Eltham (?) in Kent.

7. *Echinosperrum Lappula*. In small quantity at Southwold in Suffolk, where it was discovered by the Rev. E. A. Holmes.

8. *Epilobium lanceolatum*, (Seb.) This is the *E. montanum*, var. *γ. lanceolatum*, of my Prim. Flor. Sarn., which was there considered as a variety owing to my supposing that the plant of Koch was the same as that of Sebastiani. Bertoloni has since shown that Koch's plant is, as he supposed, a variety of *E. montanum*, but that the true *E. lanceolatum*, with which ours agrees, is a distinct species.

9. *Eranthis hyemalis*. Only a naturalized species.

10. *Erysimum virgatum*. In the neighbourhood of Bath the place of *E. cheiranthoides* is supplied by this plant.

11. *Galium insubricum*. I look upon this as rather a doubtful species; it being too closely allied to *G. Mollugo*. Found near Winander Mere several years since by the Rev. C. A. Stevens.

12. *Gentiana germanica*. Stated by Dr. Grisebach to be common in Britain; I am inclined to consider it only a variety of *G. Amarella*.

13. *Hieracium lævigatum*. I am now convinced that this plant is not the species intended by Willdenow, but that it is the *H. rigidum* of Hartmann and Fries. It is found in many places.

14. *Linaria purpurea*. Only a naturalized plant.

15. *Malcolmia maritima*. In my opinion this plant has no just claims to be included in the list.

16. *Melissa officinalis*. Naturalized in many places.

17. *Nasturtium anceps*. A common and distinct species.

18. *Oxalis stricta*. Naturalized at Penzance, in Cornwall.

19. *Pinguicula longicornis*, (Gay?). An apparently distinct species, found by Mr. Jos. Woods in a valley near Helvellyn, and called by this name, of which there is no trace in any of the works to which I have access.

20. *Rumex scutatus*. Near Edinburgh: a very doubtful native.

21. *Scirpus parvulus*. Found in Hampshire, and probably overlooked in other places owing to its minuteness.

22. *Scrophularia Ehrharti*. An account of this plant will be found in the 'Annals of Nat. Hist.' v. 1. It has been observed near Edinburgh, Berwick-upon-Tweed, Preston and London.

23. *Teucrium regium*. It is much to be feared that some mistake has occurred in stating that this plant grows on the Blorenges, near Abergavenny, as the exact spot on which it is believed to have been gathered, has been examined carefully by a distinguished botanist, but without success.

24. *Trifolium Bocconi*. Found by Mr. Borrer and myself near the Lizard Point in Cornwall.

25. *Urtica Dodartii*. Found in Cambridgeshire, Norfolk and Essex.

26. *Vicia gracilis*. A native of Somersetshire and the Isle of Wight, first recorded as British in the Supplement to the 'Flora Bathoniensis.'

C. C. BABINGTON.

ART. LXXXIII. — *Analytical Notice of the 'Transactions of the Botanical Society.'* Vol. i. pt. i. Edinburgh: Machlachlan, Stewart & Co.; H. Bailliére, London; Smith & Son, Glasgow; W. Curry, jun. & Co. Dublin; J. B. Bailliére, Paris; J. A. G. Weigel, Leipzig. 1841.

(Continued from p. 291).

II. *Account of Botanical Excursions from Edinburgh in Autumn 1839.* By ROBERT GRAHAM, M.D., F.R.S.E., F.L.S. & B.S., Professor of Botany in the University of Edinburgh.

ONE of these excursions was commenced on the 2nd of August: the first plant mentioned is the rare moss *Diphyscium foliosum*, which Dr. Greville observed in great quantity and fine fruit—"by the roadside, in many places both to the north and south of Loch-Earn-Head." *Carex vesicaria* was also found in large quantities at the head of Loch Lubnaig, "towards the village called Nineveh or Strath-Eyre." Dr. Graham doubts the accuracy of the statement that the latter plant, with *Lysimachia vulgaris* and *Lythrum Salicaria* occur sparingly near Edinburgh. Of the vegetation on the mountains beyond Milgurdy the author remarks:—

"In general the alpine vegetation was found to be very scanty, except *Gnaphalium supinum*, which here, as on almost every mountain of considerable elevation in Scotland, was abundant. *Azalea procumbens* was in considerable quantity, though much less abundant on the Breadalbane mountains than in many other stations in Scotland. *Erigeron alpinus*, *Salix reticulata* and *Saussurea alpina* were found sparingly on the most distant mountains which we visited. *Hieracium alpinum* was also scarce, but more diffused. *Carex saxatilis* was abundant, especially on the north side of the mountains below the summits, and at the base of a steep wet cliff there, Mr. M'Nab found *Epilobium alsinifolium* (?) In bogs, on the north side of the mountains, below the summits, we also found *Juncus biglumis*."—p. 20.

In their route to Catjaghiamman the party observed nothing "but a sparing quantity of the ordinary alpine plants, and a few fine specimens of *Woodsia hyperborea*, *Myosotis alpestris* and *Veronica saxatilis*," *Juncus castaneus* being abundant in one place. Tempestuous weather prevented the party from thoroughly examining the summit of Catjaghiamman, of which the author observes:—

"I feel quite certain that this is untrodden ground, for no collector could have left such specimens as we gathered of *Draba rupestris*; specimens many times larger than I ever saw before, except some which I found at no great distance on the same ridge, during the last visit which I paid to that district."—p. 21.

On the south side of Ben Lawers Dr. Greville and Mr. M'Nab found the only specimens of *Azalea procumbens* seen on the whole range, except those found to the north-west of Milgurdy. *Sedum villosum* occurred at a much greater elevation than the author had before observed it in. *Gentiana nivalis* was found in considerable abundance at the base of the rocks; and —

"Among shelving rocks, near the bottom of the hill, and to the eastward of the wood above Finlarig, I gathered *Eriophorum gracile*. This I think certainly the plant indicated by Don, and figured by Smith in 'English Botany,' and it was even at a distance easily distinguished from *Eriophorum angustifolium*, among which it grew; but whether it is entitled to rank as a species is quite another question. I do not think it a scarce plant, at least in the north of Scotland. I am sure I have seen it in large quantities in Sutherlandshire."—p. 22.

At Inverarnan Drs. Graham and Greville collected specimens of the oaks which grow there, in the expectation of finding among them the true *Quercus sessiliflora*, which the former gentleman thought he had seen in that locality on a former visit.—

"In spite of our receiving a shower-bath with every twig we pulled, we persevered as long as we saw the least chance of clearing up a doubt about the species of this most important genus; but we were obliged to desist, with only a strong suspicion that my conclusion regarding the sessile-flowered oak was hasty. Whatever character may be got for this supposed species, I fear at present that the form of the leaf will yield none, for I certainly saw trees with leaves which I should have considered characteristic of *Quercus sessiliflora*, which nevertheless had peduncles several inches long. It was too dark to judge of habit, in which also, in my former visit to this district, I conceived I had seen a character."—p. 23.

In a second excursion, during a walk by the bottom of Loch Eck to Kilmun, the author observed "nothing worth mentioning except a profusion of *Carum verticillatum* in almost every damp pasture," and a great quantity of *Polygonum amphibium*, var. *β. terrestre*, in flower. Ben More, the highest mountain in Cowal, the author found to be most unproductive of alpine plants; this could hardly have been expected, the whole country being micaceous and wet, but an inspection of the district explained the cause.

"The rocks are not crumbling, but present the same forbidding sharp angles as those we had before seen in Glen Ogle. We got absolutely nothing worth naming in our ascent. We descended by a crumbling ravine in a cliff where eagles build, and

got there the only things worth notice. Among these were *Aira alpina*, *Poa glauca*, *Alchemilla alpina*, *Galium boreale*, *Saxifraga oppositifolia*, *S. stellaris*, *S. nivalis* (three or four specimens only), *S. aizoides*, *Cochlearia officinalis*, *Carex rigida* (very little in fruit), *C. pallescens*, *Luzula spicata*, *Salix herbacea*, *Saussurea alpina* (on one spot only), *Aspidium spinulosum* in various forms, *Asplenium viride*, *Hymenophyllum Wilsoni* in abundance, and in moist pasture, some way up the mountain, *Carum verticillatum*."—p. 24.

The last excursion mentioned is that by Messrs. Brand and Campbell in September, from Edinburgh by Perth and Dunkeld to Blair Athol, thence to Cawdor Castle in Nairnshire. On Craig-y-Barns, a hill north of the park at Dunkeld, *Saxifraga umbrosa* was observed covering acres of ground, and in some places forming the entire turf to the exclusion of everything else, with every appearance of being native; but the presence of *Hypericum calycinum* and other certainly introduced plants, induced our travellers to believe that the *Saxifraga* had been planted there, though at a remote period. From the Sow of Athol *Menziesia cærulea* has been nearly eradicated, only two plants having been found after a long search: at the foot of the mountain *Carex pauciflora* was abundant. In one place by the roadside between Dalnacardoch and Blair occurred what was considered to be the true *Arctium Bardana*, a plant so distinct from *A. Lappa*, that the propriety of sinking it as a species is questioned. But while an old specific distinction might thus be restored, the travellers seem disposed to discard a new one: for *Rumex aquaticus*, found frequently near Cawdor Castle, on being examined in different situations, was thought to "shade away *towards*, if not *into*, *Rumex crispus*." Among other good plants abounding in the Cawdor woods were *Rubus saxatilis*, *Goodyera repens* and *Trientalis europæa*; the latter is sometimes of "remarkable size; Mr. Stables having one plant whose branches, spread out, measured about one foot square." *Lapsana pusilla* and *Lolium temulentum* were observed near Elgin, usually among wheat.

"Mr. Gorrie has been the first to discover *Orobus niger* in the Pass of Killiecrankie, scattered over a piece of ground in the coppice wood, at least twenty yards across, and far removed from any cultivated ground."—p. 26.

III. *Observations on a Metamorphosed Variety of Antirrhinum majus.* By HERBERT GIRAUD, M.D., Member of the Council of the Botanical Society.

"The general growth and habit of this plant corresponded with its normal condition, and the stems, leaves and sepals answered to their specific characters. But the petals, with the other parts of fructification, existed in a state of very singular transformation, — affording a striking illustration of the great doctrine of morphology, —

that the organs of reproduction, with their appendages, are but metamorphosed leaves.

* * The points in which this plant departed from its normal condition, appear to be these:—The corolla, instead of being petaloid, irregular, five-cleft and brightly coloured, was leafy, regular, in five deep segments, of a green colour. The stamens, which should have been didynamous, were here absent. The ovarium, from being two-celled, became five-celled; the stigma five-cleft, instead of bifid; and the style hollow, instead of being solid.

“The quinary condition of the ovarium, and the alternation of its carpels with the divisions of the corolla, is a state which would be expected to follow any alteration in the number of its cells, with an accompanying tendency to assume regularity in its development; as the quinary arrangement is that which prevails in dicotyledons. The supernumerary carpellary leaves, of which the ovarium is composed, are obviously those which, under the normal condition of the plant, would have gone to the formation of stamens. That they are developed from the next whorl of leaves to the corolla is plain, from their alternating with its divisions. Now, in the normal condition, the stamens would be so situated; one leaf, however, in the whorl is altogether abortive, —forming neither a stamen nor a carpel; for the carpellary development of this would produce a six-celled ovarium. The abortion of stamens in the natural family Scrophularineæ (to which this plant belongs) is by no means unfrequent.”—p. 27.

This case of metamorphosis is remarkable as presenting an instance of changes proceeding in opposite directions in the same flower:—1. from centre to circumference, the bright-coloured irregular corolla having been converted into five equal, green, leafy segments, clothed with glandular hairs, like the calyx: 2. from the circumference to the centre, the stamina taking the form of carpellary leaves. The former of these changes is considered by the author to disprove an opinion expressed by Dr. Lindley, that transformations of the reproductive organs “*always* take place in the order of development, or from circumference to centre; that is to say, that the calyx is transformed into petals, the petals into stamens, &c., but that *the converse does not occur*.”

IV. *On the British Species of Fumaria.* By CHARLES C. BABINGTON, M.A. F.L.S., F.G.S., &c.

Mr. Babington, in a paper read before the Society on the 12th of May last, has entered more fully into the specific distinctions of *Fumaria parviflora* and other allied species of the genus, (Phytol. 239); we therefore think it better to defer our analysis of the present paper until the publication of the second in the Transactions.

V. *On Systematic Arrangement in the Formation of Natural-History Collections.* By WILLIAM BRAND, C.S., F.B.S.

BELIEVING that nothing has been created without an object, the

author also imagines "that all things exist according to a suitable arrangement, the laws or conditions of which may, in some measure, be ascertained by a well-directed investigation," the first requisite for which is such an acquaintance with the various objects as will enable the enquirer "to recognise and identify them wherever they appear." This knowledge can be gained only "by studying the features of each individual," and can be applied only by the several individuals being characterised, so that each may be distinguished from all others of its class. This may be termed "the process of *separation* or *disjunction* ; and an object thus discriminated is termed a *species*."

The author then briefly treats of "the process of *combination*," by which species are formed into genera, these again into other groups, and so on, until all the objects in any kingdom of nature are classed under a few grand divisions. These groups, being but interrupted links, "where nature probably exhibits a continuous chain," must be to a certain extent artificial, a separation into *species* or *individuals* being the only real classification indicated in nature. The author meets the objection that naturalists "waste their time and energies upon the external character and appearance of objects, instead of applying themselves to ascertain their relationship, properties and uses,"—by remarking that the former is an indispensable preliminary to the successful prosecution of a higher course of research, to the promotion of which a still farther advance must be made, "namely, to ascertain the range or distribution of species, with their relative condition, and other attendant circumstances in any different region of the globe."

"Now, in prosecuting such an investigation, I consider it necessary to commence by mapping out, or dividing the surface of the globe into appropriate sections ; then to ascertain the various productions which occur in each, with the circumstances attending them ; and lastly, to register the information thus acquired, in such a way as to afford a ready and comprehensive view of these productions, both as they exist in any one section, and as they stand relatively to those of other sections."—p. 41.

In forming these sections, although no abrupt or decided change in their productions may be occasioned by topographical influences, yet may certain lines be traced whereby such changes are indicated ; such lines would form appropriate boundaries for the sections. Thus the ridge of a mountain chain, a table-land, or the channel of a great river, may sometimes be properly chosen as a sectional line, especially when the former regulate the water-sheds or sources of streams flowing in opposite directions. The sections should be so limited in extent that all the important changes occurring in the productions of a

district may be exhibited, while they should "not be so numerous as to render definite limits unattainable, or otherwise obstruct the scheme in its practical working." The author observes that "any mode of division adopted must always be liable to controversy," but that he himself believes "about 110 sections would suffice for the proposed object."

"This object being accomplished, the next requisite for ascertaining with accuracy the productions of the earth, is to procure specimens of these from *every* section wherein they occur, along with full particulars relative to their condition; and to record those particulars in such methodical array as to make them directly available for the purpose intended. To carry on this process efficiently, however, I consider it essential that the information should be registered immediately on being obtained, or at least as soon thereafter as possible, both that the rapid accumulation of objects in a general collection may not interrupt the regularity of procedure; and because I conceive that a material saving of labour will always be effected by disposing of these objects at once, and singly as they occur."—p. 42.

Mr. Brand considers that the best mode of rendering Natural-History collections easily available, is to record the species in a tabular form under an alphabetical arrangement, employing certain simple signs or marks to indicate all the information obtained respecting them. The author is of opinion that the adoption of this mode of arranging and registering all known facts and circumstances connected with objects of Natural History, must eventually lead to the highest practical results.

VI. *Description of Pothocites Grantonii, a new Fossil Vegetable from the Coal Formation.* By ROBERT PATERSON, M.D., &c., *Extraordinary Member of the Royal Medical Society, and one of the Council of the Wernerian Natural History Society of Edinburgh, &c. &c.* Communicated by the President.

THE fossil which is the subject of the present paper "was found in a mass of bituminous shale, from the coal strata which are exposed along the coast at Granton." The specimen here described and figured is the only one met with during a long-continued series of researches in the locality wherein it occurred; and it appears to constitute an entirely new fossil genus.

At first sight the figure (which is of the natural size) appears to represent about three inches of the lower part of a catkin of *Typha angustifolia*, attached to a portion of the stem. On a closer inspection, however, it is seen to differ materially from the fertile catkin of a *Typha*, for in that genus there is no other floral envelope than the hairs surrounding the pedicel of the pericarp; whereas on the exposed surface of the fossil are four longitudinal series of bodies, each of

which, in the accompanying magnified views, is seen closely to resemble a four-leaved calyx. Another point in which the fossil differs from *Typha* is that on the stem, about an inch below the catkin, we observe a scar apparently indicating the spot whence a leaf or spatha had fallen, or where a branch had been broken off; now there is nothing of this kind in *Typha*. It therefore became necessary to seek in some other genus for the living analogues of this fossil, and these are apparently furnished by several species of *Pothos*, a genus belonging to the natural order Aroideæ, and characterized by having a one-leaved spatha, and a simple cylindrical spadix covered with flowers, which have a four-leaved calyx, no corolla, four stamina, and bear a 4-seeded berry. These characters will be found to apply nearly to the fossil, making allowance for "the compression it has undergone, and the change of appearance produced by its mineralization."

"The greatest number of the species of the genus *Pothos* are parasitic, and inhabit the vast forests of tropical countries. In some of the species, also, there are truncated fleshy scales on each side of the germen, and which, in the young state, completely cover the male organs of the plant; these are especially conspicuous in *P. acaulis*.—The similarity of the habitats also favours the idea of its belonging to this class of plants."—p. 51.

The author enters at some length on the mode in which the different carboniferous strata have been deposited, and explains the process of formation of fossil fuel in the present era, as observed by travellers in America.

VII. *Extracts from the Minute-Book of the Botanical Society, from November 1839 to July, 1840.*

1839, *December* 12. Read, Extracts from a Letter addressed to Dr. Greville, from R. J. Shuttleworth, Esq., Berne, dated 11th September, 1839, containing "Observations on Diatomaceæ." After some observations on *Gomphonema*, *Meridion*, *Diatoma*, &c., the author says—

"I have no doubt as to the non-animal nature of these and analogous genera; for though I have examined, I may say, tens of thousands of individuals of most of them, I have *never* observed the slightest trace of *spontaneous* motion or action. The motion of *Oscillatoria* is perfectly mechanical, caused by the rapid development of each successive cell or joint; and an analogous motion, though merely caused by separation of each joint, is common in *Diatoma*."—p. 53.

Mr. Shuttleworth passed "eight days on the Grimsel, the hospice of which is 6400 feet, or thereabouts, above the level of the sea;" he wished to ascertain if Diatomæ exist in the alpine waters, which are scarcely above the freezing point.

"I found that every pool or stream was full of them and Infusoria, and even the Scytonema that covered the rocks several hundred feet above the hospice, and over which the snow-water trickled, served as the habitation or matrix of *Synedra lunaris*, *Ehrenb.* (*Exilaria*, *Auct.*) a true *Diatomea*."—p. 54.

The author enumerates many of the species found here, several of which were quite new: he also details the results of an examination of "the Red snow *quite fresh*," which, to his astonishment, he found composed of *Protococcus nivalis* (*Ag.* not *Grev.*), *P. nebulosus*, *Kütz.* three or four deep red and two uncoloured Infusoria; "the Infusoria were endowed with the most astonishing activity of motion."

"The coloured snow was collected in a bucket, and then allowed to melt, when the colouring matter was deposited, and immediately examined; but hardly had the water acquired the temperature of the air, than *all life ceased*, and the Alga was only to be distinguished from the Infusoria, by its greater transparency and lighter colour. The proportion of the Alga (*Protococcus nivalis*) to the Infusoria was about 5 or 6 to 1000 of the latter. That this is always the case I do not believe, as *Hæmatococcus Noltii* is always mixed with a brown *Stentor*, which latter varies in its proportion much. The *Protococcus nivalis* of the Grimsel is the same plant as that figured by Agardh, in the '*Icones Alg. Europ.*' tab. 21, f. a. The sporules, or rather the contents of the plant, are merely grumose, and the granules are so small, as to be even inconspicuous with a power of 300 diameters, whereas in *Hæmatococcus Noltii* (to which your species of red snow is closely allied) the granules are large, and few in number. The *Protococcus nebulosus*, *Kütz.*, is a simple, very small, grey or uncoloured globule, which abounds everywhere, and as, from mechanical causes, it is attracted round the globules of red snow (Alga and Infusoria), it is certainly the cause of the gelatinous appearance of the substratum, described and figured by many authors, which however does not exist in our Swiss plant. The colouring matter of the red snow extends to the depth of eight inches at least below the surface; it is only found on *old* snow of some years standing probably, and only develops itself during warm weather and a southerly wind. This snow is also always more or less covered with minute particles of humus; and I regret that the state of the weather did not permit me to examine the humus immediately below the snow."—p. 55.

There is also a reference to a paper by Mr. Shuttleworth published in the '*Bibliothèque Universelle de Genève*,' Feb. 1840.

Exhibited, by Mr. W. C. Trevelyan, a series of varieties of *Scolopendrium vulgare*, gathered at Auchmithie in Forfarshire. The most frequent form is that with a simply bifid termination; one specimen is three-cleft; in others the midrib being divided near the base "forms a frond with two branches, nearly at right angles with each other;" in another specimen the frond is much branched at the extremity; then again some have a rounded termination, the midrib not reaching to the end, and other fronds have a circular form; the edges of some fronds

are fimbriated, of others crenated; and in one remarkable variety the frond is much thickened, and the veins are more distant than usual, "there being about one-third only of the usual number in a given space."

1840, *February* 13. Read, a Communication from the Rev. C. A. Stevens, Kent, on *Scrophularia aquatica* of Linnæus and of Ehrhart. The author, considering the plants of the above authors to be distinct species, has named the latter *S. Ehrharti*, and thus characterizes them.

"*S. aquatica*, Linn. Leaves cordato-ovate, very obtuse, crenato-serrate, lower ones auriculate; lateral cymes corymbose, many-(8—15)-flowered; sterile filament reniform, nearly round, entire; capsule ovate, rather acute.

"Cymes mostly opposite; peduncles and pedicels glandulose; bracts generally linear, obtuse, entire.

"*S. Ehrharti*, C. A. Stev. Leaves ovate or ovato-lanceolate, somewhat cordate at the base, acute, serrate; lateral cymes divaricating, few-(5—6)-flowered; sterile filament bifid, its lobes divaricating; capsule globose, very obtuse.

"Cymes mostly alternate; peduncles and pedicels hardly at all glandulose; bracts foliaceous, lanceolate, acute, serrate."—p. 57.

There is also a reference to Mr. Stevens's paper on these plants in 'Ann. Nat. Hist.' v. 1.

April 9. Dr. W. B. Clarke read a communication on certain properties existing in *Tilia europæa*, Linn. The author observes that "this plant is remarkable for the immense quantity of mucilage contained in the bark, and for the manner in which the cellular tissue involving it is arranged within the meshes of the ligneous tissue." The mucilage exists in a nearly solid form, but is soluble in water; the spaces in the woody fibre of the inner bark containing the cellular tissue appear to be formed "by the cohesion of the woody tissue in certain parts, and its separation in others, to such an extent, that by the gradual and lateral distension of the earlier layers of the liber in the exogenous growth of the tree, certain spaces are made to intervene between the reticulations of the woody fibre, which are gradually filled up by the development of cellular tissue." A transverse section of a branch exhibits these spaces so disposed in the bark as to present "a series of little conical figures, with their bases towards the circumference of the bark, and their apices in communication with the medullary rays, which traverse the wood of the stem."

The author describes the mode of preparing this vegetable mucus from the bark.

May 14. Read, Observations on *Gentiana Amarella*, Linn., and *G. germanica*, Willd.; and on *Pyrola media*, Sm.; by P. J. Brown, Esq., Thun. The author states his belief that the much-controverted question of the specific identity or distinctness of the two *Gentians* is yet far from being settled; and "that it never can be set at rest in the closet, or in any other way than by the continued examination of both plants in a living state, and in their native abodes."

"Smith, in his 'English Flora' (under *G. Amarella*), says that *G. germanica*, W. 'may be a good species, but has not yet been observed in England.' Grisebach, the latest and best authority for the *Gentianæ*, has England or Scotland as the country of every variety of *Amarella*, and near Ripon as a habitat of *germanica*. His distinctions and descriptions, although apparently available upon paper, will not, however, stand the test of the field, as they fluctuate within the limits of probable variation, as may be judged to be likely when he has four states of each species. Minor distinctions being set aside, there seems to be little more left than *G. Amarella*, ovarium and capsule sessile, calyx-lobes lanceolate, obtuse, *though variable*; *G. germanica*, ovarium and capsule stipitate, calyx lobes ovato-lanceolate, acuminate. It is true that in his *characters*, he calls the tube of the corolla of *Amarella* cylindrical, and of *germanica* 'sensim ampliata'; but in his *descriptions* he calls them both *obconical*. Every distinction he makes depending on size, form, or proportion of parts, may be found here in the space of a few square yards equally applicable to the one as to the other, our plants varying from two inches to two feet, from quite simple, with one flower, to very much branched, with from 150 to 200 flowers; leaves broad and narrow, blunt and pointed, much more distant from each other than their own length, or quite the reverse; the calyx-lobes, which are avowedly inconstant, vary as much as the other parts, and the question is nearly reduced to the sessile or stipitate ovarium, and capsule. Now, although our plants are, at least in my opinion, decidedly Grisebach's *G. germanica*, I do not find the stipitate ovarium, and am inclined to suspect it may be a delusory appearance, arising in the following manner. * * * The lower third of the ovarium being destitute of seeds, and at the same time fleshy and succulent, I suspect that when gathered in an early stage of flowering, or later if much pressed and dried very quickly, the ovarium shrinks uniformly in drying, and has the sessile form attributed to *Amarella*; but that when in a more advanced stage, particularly if dried slowly under slight pressure, the substance of the swelling seeds keeps the upper portion of the ovarium expanded, while the lower empty succulent part shrinks and produces the stipitate form of *germanica*."—p. 59.

The author observes that his attention was drawn to the subject too late in the season to pursue the inquiry satisfactorily; he suggests that botanists should study these plants "from the commencement to the end of their flowering season, drying specimens at stated intervals of about a fortnight, and noticing the form of the ovaria in the living and dried states." In this recommendation we most heartily concur, and should be glad to learn the results. Mr. Babington's opinion on *G. germanica* is recorded in the present number (Phytol. 310).

The author's idea relative to the ovarium of *Gentiana germanica*, was suggested by his observations on *Pyrola media*, which appears to be a rare plant in Switzerland. In June, 1838, the author chanced to find a tolerable supply about five miles from Thun. The plants agreed pretty well with the characters given, except that the style instead of being club-shaped was decidedly cylindrical. In the progress of drying however this difficulty was explained "by the conversion of the cylinders into clubs," whereby the character most insisted on was shown to be false.

"The styles, which are considerably elongated, and although declined, are scarcely curved, have a diameter at least twice that of *P. rotundifolia*, and are very succulent, being furnished with a stout ring at the apex, as in the last-named species. In the individuals gathered while the flowers were yet young, the rigidity of this annular protuberance prevented the summit of the style from shrinking, and it consequently became club-shaped when dry; but in those which were further advanced, the ring having become more or less flaccid, it ceased to afford the same resistance, and the styles remained nearly cylindrical, although shrunk to half their original thickness. This view is now confirmed by British specimens in my herbarium. One from England, gathered when the plant was coming into flower, has a style nearly triangular; the other six, from different Scottish stations, are all in fruit, and have all the styles, excepting one, cylindrical, and that one not far from being so."—p. 61.

June 11, 1840. Read, Notice of the Occurrence of several Rare Cryptogamic Plants on the Sidlaw Hills; by Mr. William Gardiner, jun., Dundee. The following is a list of the plants, with their localities.

1. *Buxbaumia aphylla*, Linn. Northern declivity of one of the hills; May. "It grew very sparingly on several small spots of bare soil that occurred among the heath."—p. 62.

2. *Parmelia physodes*, Ach. Deerhill Wood; end of March. "The tree state of this lichen, as far as I have observed it, differs from that found on walls and stones, in being of smaller size, more deeply divided, of less dense growth, and of a clearer colour above, with its under surface darker. Only one specimen was found with the apothecia fully developed."—Id.

3. *Dicranum squarrosum*, Schrad. "Marshy banks of a small lake at the west side of the White Hill of Auchterhouse;" associated with *Weissia acuta*, *Hypnum aduncum* and *H. revolvens*, and "near it was abundance of *Polytrichum commune* and *yuccæfolium*. The *P. commune* β . *attenuatum*, though said to attain only the height of three or four inches, is frequently as tall as the other variety, sometimes above a foot high."—Id.

4. *Hypnum fruitans*, Linn. "Near the source of Dryburn rivulet, which flows from the Sidlaws into Glen Ogilvy. There were a good number of capsules on it but immature."—Id.

5. *Ramalina farinacea*, Ach. "Found in Deerhill Wood, with apothecia."—Id.

6. *Cetraria islandica*, Ach. "On the top of an old wall, at the foot of the White Hill of Auchterhouse."—Id.

July 30. Read, Notice of Recent Excursions in the Neighbourhood of Edinburgh; by Dr. Graham.

"Dr. Graham stated that *Epilobium alsinifolium*, said to have been found on the Ochil Hills, appeared to him to be only a variety of *E. tetragonum*; that *Salix herbacea* and *Gnaphalium supinum* had been found sparingly on Ben Clach, a mountain of that range; and that *Galium pusillum*, *Rubus Chamæmorus*, *Polygonum viviparum*, *Lycopodium Selago* and *selaginoides*, had been gathered in the same locality.

"Dr. Graham also mentioned that he had found several fine specimens of *Orobanchæ rubra* on the cliffs below St. David's, Fife, and one specimen of *Anthemis tinctoria* on ballast-heaps near the same place. *Epipactis ensifolia* he stated to have been found near Dunfermline by a lady."—p. 63.

Dr. Herbert Giraud read a paper "On the Existence of Nitrogen in Plants, considered with reference to their development, and to their serving as food for animals." The author first pointed out the relations of nitrogen in the constitution of organized beings, and that it "appears to be the most essential element of organization." That all the tissues of plants contain nitrogen, is shown by the experiments of the author, as well as by those of Boussignault, Payen and Rigg; who have also proved "that vegetables have the power of deriving that element from the atmosphere." The proportion of nitrogen varies from about three to five per cent. Speaking of M. Boussignault's researches the author remarks:—

"The results of his experiments have shown, that the proportion of nitrogen in any vegetable tissue or organ, bears an intimate relation to the activity of the vital functions with which the tissue or organ is endowed. Thus, in that part of the seed in which germination commences, nitrogen predominates. Seeds also, which germinate most readily and most rapidly, contain the largest quantity of nitrogen. With regard to woody structures, it appears that the alburnum, which greatly exceeds the heart-wood in the activity of its functions, contains by far the largest proportion of nitrogen. Those timbers also, which grow most rapidly, contain the largest proportion of nitrogen."—p. 64.

(To be continued).

ART. LXXXIV. — *Notice of the 'Transactions of the Microscopical Society of London.'* Vol. i. pt. i. London: Van Voorst. 1842.

THIS part, containing 86 pages Royal 8vo. and illustrated with 8 plates, has just been laid before the public, and affords ample evidence of the active and industrious spirit which animates this young but prosperous Society. The papers are twelve in number; seven of these are zoological, four botanical and one geological. We give a short analysis of the botanical papers in the order in which they occur.

I. — *On the Development of the Vascular Tissue of Plants.* By EDWIN J. QUEKETT, F.L.S., B.S., &c.

Mr. Quekett commences his paper by commenting on the difficulties attendant on the enquiry; and observes that he believes the idea to be in great measure correct, that "in structure vessels differ but little from cellular tissue, and that the elements of which the latter is formed are only altered and converted to fulfil a different function in the former, and that the development of the one will more or less correspond to that of the other." He then proceeds to give the views of Schleiden, Raspail, &c., and alludes to the opinion of Mirbel, Treviranus and Slack, that the membranous tube of a vessel is formed from a number of cells ranged end to end, their connexions being ultimately absorbed, thus causing the production of a continuous cylinder instead of several separate cavities. Pursuing this idea the author thus proceeds:—

"I must state that in many instances I have met with arrangements of cells in such a way as would lead one to suspect that this was the true origin of a vessel; and it is a curious fact that cells adhere end to end much more strongly than they do side by side; therefore, when disturbed, they appear more frequently in strings than in other forms: but I believe no one has ever seen the fact farther than here described, or followed out the complete development of a vessel from this condition of cells; and there is one fact presently to be mentioned, connected with the development of a vessel, which entirely disproves this theory."—p. 3.

In order to watch the development of the membranous tube of a vessel, Mr. Quekett recommends that some part of a plant in a nascent state, as a bud or bulb, should be selected for examination; he also lays great stress on the necessity there is for caution in making dissections of recent parts in order to witness the appearances which he subsequently describes. The author then details observations for the most part confirmatory of Schleiden's views, as explained by that writer in his memoir on *Phytogenesis*, a translation of which appeared in the '*Annales des Sciences Naturelles*,' (tom. xi. Botanique): he continues:—

"When the young vessels are recognized (which by experience becomes an easy matter, even in parts considerably developed, though not so at first), they appear as pellucid glassy tubes, with a cytoblast in some part of their interior; earlier than this they are not to be recognized readily from cells. As they grow older the cytoblast diminishes, and the contents, which at first were clear and gelatinous, become less transparent from containing thousands of granules, which are too small to allow of the passage of light, and consequently appear as dark points; these atoms are about the $\frac{1}{200000}$ of an inch in diameter, and have the motion known as "active molecules." If the vessel be wounded at this period the gelatinous contents pour slowly out, and then the

singular movements of these molecules are still more clearly seen. These atoms, from their freedom of motion, are arranged indiscriminately in the interior of the vessel, but in a short time some of them enlarge, and then transmit a little light, which, on account of their minute dimensions, is not suffered to pass as a white pencil, but is decomposed in its course, the granule thereby becoming of a greenish hue. The granules exhibiting this greenish hue are now in a fit state to enter into the composition of the fibre that is to exist in the interior of the membranous tube, and in a spiral vessel this is the manner in which this act is accomplished.

"The granules which are in active motion in the viscid fluid near one of the ends become severally attracted to the inner wall of the vessel, beginning at the very point; those granules first attracted appear as if cemented to the spot, by the viscid fluid in that direction losing some of its watery character, for there appears a string of a whitish colour, besides granules, in the line which the fibre is to occupy. As the other granules are attracted to those already fixed in an inclined direction, the spiral course is soon to be seen, and the same action progressively goes on from the end it began towards the other, around the interior of the tube in the form of a spiral; the fibre being produced, like a root, by having the new matter added continually to the growing point, thereby causing its gradual elongation.

"This action is not throughout the vessel at the same instant, for I have witnessed a vessel having one half laid down with fibre, and in the other part the operation had not been commenced. When the granules have arranged themselves throughout the whole length of the tube, those which were first deposited, and had then some slightly visible space between them, have by this time been reinforced by others or nourished by the contents of the vessel, so that that space is obliterated, the fibre beginning to assume a thread-like shape with defined borders, and sufficiently large to allow of the transmission of white light. When this same action has progressed throughout the entire vessel, the transparency begins to be restored, and what is singular, the entire mass of granules has completely disappeared, appearing as if the exact number and no more had been generated to form the fibre. After the vessel has reached maturity, the liquid contents themselves become absorbed, as happens in the cells of the pith, and the vessel is then empty; and probably from being seen at different periods of its existence in these different states, sometimes full and at others empty, may account for the discrepancies existing among botanists as to the functions these vessels perform."—p. 5.

It appears scarcely necessary to follow the author through the remarks which succeed the passage above quoted; a summary of his views on the direction of vegetable fibre, will, however, we trust, be highly acceptable to physiological botanists.

"It appears to me that the only theory capable of explaining the direction of the fibre, is one that will apply to some peculiar laws existing between the granules themselves and between the granules and the vital force residing in the vessel or cell in which they are contained. There can be no doubt that at first the granules are in the jelly, consequently as they become sufficiently developed they acquire freedom of motion, and attraction commences between the wall of the cell and the granules, and it can be easily imagined how these numerous atoms may be induced to approach to the circumference of the vessel, but the difficulty of the proposition is to account for their doing so in a spiral or other determinate form, and always of the same figure in the same situation in the same plant.

"Some part of the law, I believe, is made tolerably clear, viz., that fibre is composed of granules arranging themselves like beads on a string, which become nourished by the contents of the vessel until a perfect thread is the result, and the direction this takes seems to me to be the result of some special power residing in the vessel under the control of the whole plant, probably electrical; and which is modified in the several vessels I have enumerated: farther than this I believe we cannot go, though nature occasionally alters forms, she seldom varies much in her laws, but what these may be it is forbidden the eye of man at present to detect, and they appear to me, though operating in such minute spaces, to be stamped with as much permanency of power in the formation of these curious and elegant organs, as those laws on a grander scale are in the fashioning of our own frame, or in the maintaining of the stability of the universe."—p. 11.

IV.—*On certain Phenomena observed in the genus Nitella, as illustrative of the peculiar structure recently discovered by Mr. Bowerbank, in a Fossil Wood from the London Clay.* By ARTHUR FARRE, M.D., F.R.S., &c.

Dr. Farre's paper on *Nitella* is highly interesting, as illustrative, in some degree, of appearances previously detected in fossil wood by Mr. Bowerbank. The author had procured some specimens of *Nitella flexilis* for the purpose of observing the circulation of the sap: up to the 4th of April this was going on vigorously, but two days afterwards it had entirely ceased, and certain green particles, previously lining the interior of the stem, had shrunk from the parietes, and, together with the green circulatory matter, was collected in irregular masses within the tube. Five days afterwards Dr. Farre found that in many of the joints these irregular masses had resolved themselves into globular bodies of a brown colour, the tubes being left as transparent as glass, and the brown globules appearing as an irregular row of beads in the interior. In almost all the globules was a cup-shaped depression, generally so situated as to face the surface of the tube in the centre of the depression: a small collection of brown granules, of about uniform size with the globules of circulation, was always present. The brown bodies, on being torn open, were found to consist of a very thin investing capsule, filled with the green granules of the plant mixed with mucous fluid.

"It appears then that this remarkable change had taken place within a week after the circulation had been observed to be going on vigorously in the plant. And the nature of the change appears to be this. The green granules which line the internal surface of the living joints desert the parietes, and, together with the green circulating granules of the interior collect together in irregular masses in the centre of the tube, which then resolve themselves into irregular spheres, still retaining the granular outline indicative of their formation by aggregation, but which they afterwards lose on

assuming a more perfect spherical form, and become bounded by an investing capsule, which turns of a rich brown colour, while the contained granules retain their original green.

"It is difficult to imagine what purpose is intended to be answered by such a change taking place after all circulation and other evidences of life in the plant have ceased. Yet the idea of such a change being the result of a merely fortuitous arrangement of the component particles of the plant attendant on decomposition, is negatived by the circumstance of the remarkable uniformity and symmetry of the resulting globules, which appear to possess the most definite characters, differing from each other only in size. Nor is the change by any means uniform for the whole plant; for in some parts two of the joints were observed to be in the green state, while the joint situated between them was free from green matter and contained the brown bodies: but this might have resulted from the circulation ceasing earlier in the central joint, and consequently allowing more time for the changes to take place."—p. 23.

V. — *On the Structure of some Tissues possessing Hygrometric Properties.*
By E. J. QUEKETT, F.L.S., B.S., &c.

Mr. Quekett cites many interesting examples of hygroscopic properties as exemplified in Mosses, *Lycopodium lepidophyllum*, the seed-vessels of *Epilobium*, *Mesembryanthemum*, *Rhododendron*, *Geranium*, *Banksia*, *Hura*, *Avena fatua* &c. He then details the structure of the capsule of *Cerastium*, which we give in his own words.

"Let us take, for example, the capsule of some plant of the order Caryophyllææ, as *Cerastium*, and it will be found that when that organ approaches maturity, the apex, which was pointed and entire, will open by splitting into five equal valves, which curl outwards, making one complete coil, and always in the same direction; by the application of moisture the valves will resume their original position, and when dry take on the curled form again.

"If one of these valves be examined it will be found to be thin and diaphanous where it forms part of the body of the capsule, but where it is hygroscopic it is horny and opaque. When a section taken from the edge of the valve or curled part longitudinally is examined by the microscope, it will be found that the tissues will be different on the exterior and internal surfaces, both however cellular; but the inner layer, or the cells of the convex border, are of different dimensions from the outer, being neither so large nor having so thick walls, (though they are thicker than ordinary cells); whilst those of the outer layer are almost solid, and the only cavity they have is indicated by thin spaces between a series of lines, the chief one of which is in the direction of the longer axis of the cell, the others connected to it at right angles. These cells are of most curious structure, and form an interesting object for the vegetable anatomist.

"In this arrangement of parts it must be evident that by the shrinking of the tissues of the seed-vessel by loss of moisture, there will occur unequal contraction, and that side will be curved which contracts the most forcibly, and by this curvature one valve must necessarily be removed from the next, evidently showing that the tissues act as unequal antagonists to each other."—p. 26.

Mr. Quekett gives numerous instances in which the great end of

disseminating the seeds of plants is accomplished by the hygroscopic properties of their tissues. The subject is one of much interest, and well worthy the attention of the student of nature. In pursuing the enquiry he will almost invariably find the means so admirably adapted to the required end, that not only would it be impossible for human ingenuity to devise an improved plan, but the plans adopted by nature often offer us models and exhibit combinations which have suggested some of our most apt and useful applications of mechanical power.

VII. — *The process of charring Vegetable Tissue as applied to the examination of the Stomata in the Epidermis of Garden Rhubarb.* By the REV. J. B. READE, M.A., F.R.S.

The Rev. Mr. Reade's paper on charring vegetable tissue appears to be of great importance, as tending to settle the mooted question of the existence or otherwise of a membranous covering to the stomata of vegetables. The author's conclusions are these : —

"That in the simple uncharred state of the semitransparent tissue there is much room for difference of opinion, so that the eye, fortified by a little previous theory, might most pardonably see the stomata either open or closed.

"That the application of the process of charring proves, beyond a doubt, that the stomata in this tissue of the rhubarb are distinct openings into the hollow chambers of the parenchyma of the leaf.

"That the perforation is the rule and not the exception in the structure.

"And that the exception, where it exists, *i. e.* where the stomata are closed, proves the existence of the overlying membrane discovered and described by Dr. Brown." — p. 41.

ART. LXXXV. — *Varieties.*

203. *Additions to Mr. Flower's List of Plants in the vicinity of Bristol*, (Phytol. 68).
- | | |
|---|---|
| <i>Bromus erectus.</i> Between Horfield and Filton, abundantly. | <i>Scilla autumnalis.</i> Near bridge, St. Vincent's Rocks. |
| <i>Danthonia decumbens.</i> Clifton Rocks, sparingly. | <i>Fritillaria Meleagris</i> has been gathered in flower two or three different times in a field of Mr. Maule's at Stoke Gifford. |
| <i>Anchusa sempervirens.</i> Between Frenchay and Downend. | <i>Juncus maritimus.</i> Portishead. |
| <i>Anagallis cærulea.</i> Cornfield at Horfield. | <i>Rumex Hydrolapathum.</i> River-side near bridge at Stapleton. |
| <i>Samolus Valerandi.</i> Stapleton Quarries, near the river. | <i>Triglochin maritimum.</i> Clevedon. |
| <i>Rhamnus catharticus.</i> Hedges at Stoke Gifford. | <i>Colchicum autumnale.</i> Fields near Dundry |
| <i>Viola hirta.</i> Stapleton, Leigh Woods and St. Vincent's Rocks. | <i>Paris quadrifolia.</i> Near Shirehampton. |
| | <i>Silene maritima.</i> Clevedon, abundantly. |

- Alsine marina*. Under St. Vincent's rocks.
- Cotyledon Umbilicus*. Stapleton, Hanningham and Easton.
- Sedum album*. Wick Cliffs & Frenchay.
- Spiraea Filipendula*. Durdham Down.
- Filix europæa*. Leigh Woods.
- Mentha rotundifolia*. Road-side between Westbury and Horfield.
- Teucrium Chamædryas*. Blaize Castle.
- Linaria spuria and Elatine*. Cornfield at Horfield and at Bishopool.
- *minor*. Crew's Hole.
- *repens*. Roadside at Nailsea.
- Thlaspi arvense*. Cornfield at Horfield.
- Cochlearia anglica*. Rownham, abundant.
- Koniga maritima*. About Baptist Mills.
- Geranium pratense*. Week.
- *lucidum*. Easton.
- Diplotaxis tenuifolia* is abundant in St. Phillip's and at Lower Eaton.
- Sedum rupestre* is very abundant on St. Vincent's Rocks, nor should I have thought it had been introduced, for it is by no means confined to any particular spot, and as it does not seed there, I think it would be difficult for it to spread over such an extent as it does by its roots alone.
- Pyrus torminalis* grows in Leigh Woods, but I have never seen it on St. Vincent's Rocks.—*Samuel Freeman* ; Birmingham, October 16, 1841.
204. *Rarer Plants near Southampton*. Appended is a list of some of the rarer plants observed at Southampton, in May and June, 1842, with their localities. Those marked with an asterisk were furnished by Mr. T. S. Guyer, of Southampton.
- Utricularia vulgaris*. Old canal, Milbrook shore.
- Circæa Lutetiana*. Near Wood Mills.
- **Rhynchospora alba*. Botany Bay.
- Isolepis fluitans*. S. end of Miller's pond.
- **Verbascum Blattaria*. Entrance of the avenue.
- Drosera longifolia*. Botany Bay, near the Fareham road.
- Atropa Belladonna*. Wood mills ; shore near Itchen and Netley.
- Ænanthe Phellandrium*. Milbrook shore
- Allium oleraceum*. Ditto.
- Convallaria multiflora*. Wood by footpath to Netley, near the abbey.
- Daphne Laureola*. Ditto.
- Sedum anglicum*. Netley shore.
- *—— *Telephium*. Near a pond on going to Shirley across the fields.
- Althæa officinalis*. Portishead.
- Vicia sylvatica*. Leigh woods.
- Hypericum calycinum*. Leigh woods.
- Carduus eriophorus*. Near Bedminster coal-pits.
- *pratensis*. Filton mead.
- Conyza squarrosa*. St. Vincent's rocks.
- Aster Tripolium*. Rownham.
- Gymnadenia conopsea*. Stoke Gifford.
- Habenaria bifolia*. Woods at Stapleton and Stoke.
- Spiranthes autumnalis*. Purdown.
- Carex pendula*. Near St. Ann's Wood.
- *Pseudo-cyperus*. Winterbourn.
- Mercurialis annua*. Crew's hole.
- Polypodium vulgare, γ. cambricum*. Near Downend.
- Ophioglossum vulgatum*. Stoke Gifford.
- Lycopodium clavatum*. Clevedon, abundant.
- Silene maritima*. Shore between Itchen and Netley, in the utmost profusion
- Alsine marina*. Milbrook shore.
- Nymphæa alba*. Miller's pond.
- Orobanchæ major*. Heath near Miller's pond.
- **Linaria repens*. Milbrook shore, beyond the church; also near Shirley church
- Diplotaxis tenuifolia*. Southampton walls
- Lathyrus palustris*. Botany Bay.
- Carduus pratensis*. Southampton Common; heath by Botany Bay.
- Hypericum Androsæmum*. Roadside between Wood mills and Northam bridge.
- Epipactis latifolia*. Southampton Comm.
- Myriophyllum verticillatum*. Canal by Milbrook shore.
- Tamus communis*. Southampton Comm.

**Myrica Gale*. Botany Bay, near Southampton, plentiful.

Lomaria Spicant. Botany Bay.

Osmunda regalis. Ditto.

Lastrea dilatata. Ditto. — W. L. Notcott, Fareham, July 6, 1842.

Athyrium Filix-femina. Ditto.

Asplenium Adiantum-nigrum. Fareham Road.

Scolopendrium vulgare. Ditto.

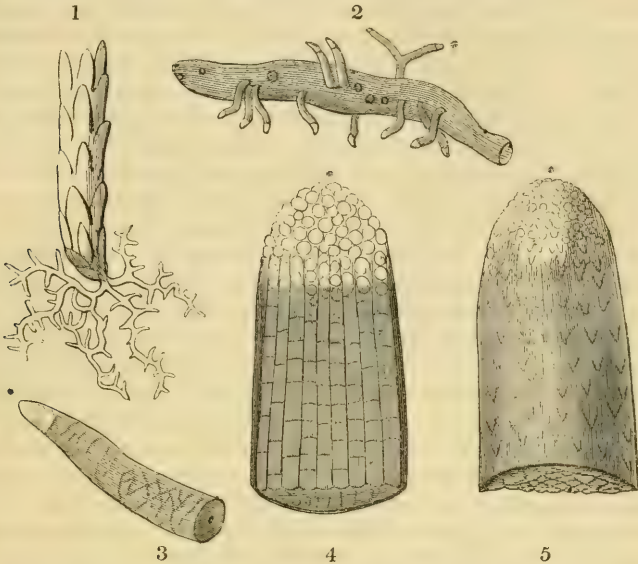


Fig. 1. Lower part of stem of *Monotropa*, with a portion of the branched root. 2. Part of the root with its attached fibrils, magnified. 3. A fibril detached from the root, as seen under a higher power. 4 & 5. Sections of the end of one of the fibrils, showing the loose cellular tissue of which the tip is composed, highly magnified. The * attached to the various figures indicates the transparent cellular tip of the fibrils, as seen under different powers.

205. *On the Mode of Growth of Monotropa Hypopitys.* The discussion between Messrs. Lees and Wilson on the parasitic nature of *Monotropa* excited so much interest in my mind, that not only did I regret its sudden termination, but determined on the first opportunity to examine the matter thoroughly for myself. Today, through the kindness of Mr. Wilson, I obtained specimens from Southport, and after some labour and trouble have arrived at the following conclusions, which, as they differ in some measure from those of both the combatants above mentioned, I beg to hand you for a place, if thought worthy of it, in your invaluable Journal. Having carefully removed the outer covering of sand, I came to the matted roots of the willow, which, from their density, and the quantity of sand amongst them, threatened to prove an effectual barrier to my further progress, for an hour was spent in unsuccessful picking and poking at them with a penknife. In this stage of my proceedings a large bowl of water was procured, and by slowly moving the mass, held carefully between my hands, through the water, the stem of the plant being supported by my thumbs, I had soon the gratification of seeing, not only all the sand, but the loose willow-roots and much other foreign matter, deposited in the bowl. The plant was then allowed to drain for a minute, and it afterwards required very little labour to extricate it, with roots, as seen at fig. 1. The plant is not parasitic; it has no organic connexion with

the "nidi" of roots among which its own are developed; but on the other hand it is provided with an independent root of its own, and that, too, as extensive as in most plants of its size: nor are these dense nodules of fibre produced only in its immediate vicinity; several such were examined, and no trace of *Monotropa* could be found;—they appear to be attached equally to other substances. After examining the willow-roots which were in contact with those of the *Monotropa*, and on which I could find, in no instance, the slightest evidence of attachment, I proceeded to note the structure of the root itself. It consists of very brittle, tortuous, fibres, which are thickly studded with more or less claviform branches or fibrils (as represented magnified in fig. 2). Many of these fibrils were necessarily broken off during their separation from the mass, but in such cases a scar distinctly marks their former position. One of them was then placed under the microscope; with a low power it appeared as at fig. 3, and the transparency of the tip suggested the idea that they were spongioles formed as in other plants. Various sections were then made, which, on the application of higher powers, proved this to be the case; figs. 4 and 5 are selected from these, and show at once all the peculiarities of the ordinary spongiole. From this it will appear that although the root of the *Monotropa* be remarkable in structure, it is still a *true root*, and present in sufficient quantity to supply the necessities of the plant; and with regard to its constant proximity to the root of some tree, may it not—the difficulty of the subject and the notion of parasitism having called undue attention to it—be more signally remarkable in our books than in nature? Or is the excrementitious matter of these trees particularly nutritious to it, or it's to them? This I leave to those who have better opportunity to decide the matter; but I have no hesitation in saying, that the *Monotropa* has as independent an existence as any other plant. The "minute hair-like fibres" mentioned by Mr. Lees were also carefully examined; they have certainly not the appearance of suckers, and though they infest the plant to a considerable extent, are not universally present, indeed I could not assert that they are part of its structure.*—*Thos. G. Rylands; Bewsey House, Warrington, July 23, 1842.*

206. *Cistopteris fragilis* grows abundantly at Castleton; I gathered some beautiful fronds that were growing on the rocks at the entrance of and rather sheltered by the justly celebrated Peak Cavern.—*John Heppenstall; Upperthorpe, near Sheffield, August 3, 1842.*

207. *Lathyrus Aphaca*. I take the liberty of enclosing a specimen of *Lathyrus Aphaca* with its true leaves, which I believe are rare. It was discovered in 1841 by Mr. W. Newnham, jun., in a corn-field near Farnham, where it was then very plentiful; this year it is by some accident *very* rare. The enclosed was gathered by myself.—*Christopher A. Newnham; Farnham, Surrey, August 4, 1841.*

[We beg our correspondent to accept our thanks for the interesting little specimen sent. The occasional appearance of leaves in this species, especially on young plants, is mentioned by Linnæus, Smith, Hooker, and other authors, but we do not remember having seen any notice of a variation in the form of the stipules when the leaves are present. The young specimen kindly forwarded by Mr. Newnham has two leaves, each consisting of a pair of elliptic-lanceolate leaflets; the stipules accompanying the leaves, instead of being of the usual broad arrow-shaped form, are merely half arrow-shaped. Three of the simple tendrils in a flowering specimen in our own herbarium,

* Since writing the above Mr. Rylands has more fully investigated these fibres: the result of his researches will appear in our October number.

bear each a single lanceolate leaflet; but in this case the stipules are all of the usual form.—*Ed.*]

208. *Inland Localities for Maritime Plants.* I beg to hand you the following notice of plants which have been recently discovered by Mr. George Reece of this city, in localities not hitherto noticed by botanists, so far as I am aware. *Arenaria marina* is mentioned in Purton's 'Midland Flora' as occurring on Defford Common, where salt springs were discovered many years since, and where salt is now, I believe, manufactured on a small scale. *Erodium maritimum* is also recorded by Purton as having been found at Stourbridge, Kinver and Bewdley; and to *Triglochin palustre* is assigned a habitat at Feckenham; but neither *Glaux maritima* nor *Plantago maritima* is noticed in the 'Midland Flora.' *Arenaria marina*, *Glaux maritima* and *Triglochin palustre* are found on the banks of the Droitwich Canal; *Erodium maritimum* and *Plantago maritima* on Hartlebury Common. Beautiful specimens of these plants have been collected by Mr. Reece, and are now deposited in the herbarium of the Worcestershire Natural-History Society.—*J. Evans; Grove House, Worcester, August 8, 1842.*

209. *Note on Woodsia ilvensis.* On the 17th of 8th month [August] 1798, my father gathered a single frond of a fern from Crosby-Ravensworth Church, Westmoreland. Being unable to name it he showed it to several botanists in London, who could not decide what it was; Lewis Dillwyn at length sent it to Sir J. E. Smith, who returned the specimen labelled as follows:—

“*Polypodium arvonicum*,

With. et Fl. Brit. J. E. Smith.

P. ilvense, With. &

Acrost. ilvense, Huds.

(not Linn.)

Acr. alpinum, Bolt.”

The original specimen is now in my possession, with Sir J. E. Smith's autograph; the frond is $3\frac{1}{4}$ inches in length from the bottom of the rachis to the apex, and about 2 inches from the lowest pinnæ to the apex. The church has been pulled down and rebuilt within the last few years.—*Silvanus Thompson; Friends' School, York, 8th Month 9, 1842.*

210. *Enquiry respecting the British Oaks.* Can any of your correspondents inform me what are the true specific distinctions between *Quercus Robur*, *intermedia*, and *sessiliflora*? I have found what I consider to be the three species growing in various localities round Manchester: I have also gathered a number of specimens with the form of the leaves, length of the petioles and situation of the fruit so varied and intermediate, that I cannot with certainty refer them to either species. Several trees near Mottram, from which I procured specimens last month, have the fruit quite sessile and the petioles of the leaves so short as to be scarcely perceptible; whilst specimens of the true *sessiliflora* from Leigh Woods, near Bristol, given to me by Mr. Grindon, and also specimens gathered by myself in Bredbury Wood, Cheshire, have petioles near an inch in length. I have also specimens from near Mottram, which appear to be hybrids between *Q. Robur* and *intermedia*; these have their fruit upon peduncles less than an inch long, but never properly sessile, whilst the leaves are perfectly so. The form which I consider to be the real *intermedia* of authors, has long petioles to the leaves, and peduncles nearly half an inch in length, but one of the most prominent characters is in the form of the foliage; for whilst in *Robur* the leaf is much dilated towards the extremity, in *intermedia* the greatest width exists near the centre, the end

being much narrower in proportion, and the margin being altogether more bluntly cut or divided. I am inclined to believe from the consideration of these several forms that either the number of our native species of oak is at present *undetermined*, or that in reality we possess but *one*.—*Joseph Sidebotham*; 26, *York St., Manchester, August 12, 1842*.

211. *On Monotropa Hypopitys*. In deference to such high authority as that by which Mr. Newman's views are supported, I have re-examined the subject with much care, and specimens kindly supplied by Mr. Newman in a recent state have been studied in connexion with others obtained from Southport. Before I state the conclusion at which I have arrived, let me acknowledge to my much-esteemed opponents, that although I consider them to have been mistaken, I regard their error as scarcely to be avoided under the circumstances. I have seen a portion of a specimen corresponding with that which they examined, and was myself strongly inclined at the first to coincide in their view; nor was it until after very minute dissection that I perceived any fallacy. The "rhizoma" had apparently an uniform fibrous covering; but in the specimen since received from Mr. Newman, and in those from Southport (examined at the same time) the fibrous matter occurs only in very irregular and detached masses, leaving considerable tracts of the rhizoma quite naked, and this fibrous matter appears to be different on different specimens; but as an able and enthusiastic friend is now engaged in the investigation of this portion of the subject, I shall briefly state that my inference is that the supposed "cuticle of the rhizoma" is really a foreign body. Thin transverse sections of the stem exhibit no trace whatever of a cortical layer; except that the cellular tissue is surrounded by a single indurated stratum of smaller cells of a brown colour, perfectly continuous with the rest of the cellular tissue. No membranous cuticle could be detected, by scraping or otherwise, upon the stem. On the rhizoma something like a cuticle was at times found in parts not coated with fibrous matter; but this, besides being immeasurably thinner, is different in structure from the cuticle referred to in Mr. Newman's paper* (*Phytol.* 298), and can only be detected by scraping the surface of the rhizoma. In some cases it seems to be quite absent, and may therefore not belong to the plant. Mr. Newman's first and second reasons do not appear to be well founded. Wherever the fibrous matter occurs I find it matted together, and attached to the rhizoma in such a manner as to forbid the idea of organic connexion; and if there be any difference in the thickness of the ends of each fibre, which is very doubtful, the position of the parts is at variance with Mr. Newman's idea. The fibres indeed are often united together into fasciculi, presenting an appearance very apt to mislead. After careful inspection of the colourless extremities of the "rhizoma," I retain the opinion expressed in my former remarks. In opposition to the opinion that they are only growing extremities of the divisions of a rhizoma, I would remark that I know of no instance where the growing parts of a rhizoma have a downward or backward direction; also that the supposed growing extremities never develope themselves into scaly buds:—these are always laterally inserted, and, if I mistake not, are at first immersed in the substance of the root, like the buds in the tuber of a potato. On this point my former remarks require some correction.—*W. Wilson*; *Warrington, August 12, 1842*.

* Considerably more than $\frac{1}{2000}$ of an inch in thickness, and therefore easily seen when a section of the rhizoma is under the microscope.

212. *On Carex tenella.* Far be it from me to condemn that liberal criticism, the object of which is the attainment or communication of truth. Next to the relation of interesting facts, I know of nothing more suited to the pages of 'The Phytologist' than judicious and candid strictures on standard works relating to Botany; I trust we shall see many such, and that Mr. Gibson will frequently direct his abilities into that channel. In my former remarks I did not intend more than to show that the author of the 'British Flora' is not chargeable with the neglect or inadvertence imputed to him. The account given by Sir J. E. Smith was referred to, proving that an experienced botanist, with superior advantages for forming a correct judgement, and with peculiar inducements to be deliberate, may see or think he sees, in Schkuhr's figure of *Carex tenella*, something which is not apparent to Mr. Gibson. The question indeed is properly one between him and Sir J. E. Smith only; and if it should prove, as I believe it will, that the question of doubt in 'British Flora' was confined to the Scottish specimen called *C. tenella* by Smith, Mr. G. must be sensible that some of his remarks were needless, as bearing upon a point not under dispute. Admitting Mr. G. to be right in his view of Schkuhr's figure, it follows that Smith must have been wrong, and if so, he may have been also in error as to the Scottish specimen. I could point out parallel cases where Sir J. E. Smith has too hastily assumed the identity of essentially different plants; and it is probable that if he possessed only a solitary specimen, his examination would, in this case, be rather superficial. To ascertain the existence of only two stamens, dissection would be requisite, and to dissect would be to mutilate what he might wish to preserve uninjured. The fruit also might be so immature as not to exhibit the character of the species. The author of 'British Flora' was not bound to admit that specimen, which he had never seen, on the mere authority of one who reported that Schkuhr's figure could not be implicitly relied on; and it would not be unreasonable in Mr. G. to have some misgivings on the same subject. Let it be remembered also that Wahlenberg and Willdenow refer the whole figure to *C. loliacea*, a species which, notwithstanding what is said of it by Smith, may possibly have fruit corresponding with the figure. To determine this question recourse must be had to the original description, and perhaps to an authentic specimen of *C. loliacea*.—*Id.*

213. *Note on a Criticism in Taylor's Annals.** Allow me to say in reference to a note in the July number of the 'Annals and Magazine of Natural History,' (p. 421),

* The following is the criticism referred to by Mr. Gibson. "Notes on *Arenaria rubra*, *marina* and *media*; by S. Gibson, Esq. [The two former appear to us to be distinct species, but we cannot agree with Mr. Gibson in separating the latter from *marina*, as our own observations would lead us to believe that the characters drawn from the seeds and length of the capsule are not constant. We trust that we shall not be considered presumptuous if we hint to this very accurate observer, that a more frequent reference to the writings of continental botanists would be desirable. We say this without the least wish to detract from the value of Mr. Gibson's papers, but merely to avoid the introduction of additional synonyms into our already encumbered science, of which an instance occurred in a late number of the 'Phytologist,' where a *supposed* new species of *Monotropa* is named and described, which had long since received several denominations in botanical works.]"—From a notice of 'The Phytologist,' in the 'Annals and Magazine of Natural History,' ix. 421.

that I have this season, with a determination to avoid any preconceived opinion on *Arenaria marina* and *media*, made all the enquiry that I possibly could; the result of this enquiry is that I have not been able to find anything opposed to what I have before said on the subject, (Phytol. 217). After assiduously examining these plants, I may be excused for observing that I cannot participate in the writer's opinion; for notwithstanding the possibility of there being some little variation in the seeds (but such I have never seen), I have not the least doubt of their *specific* distinction. I might just as confidently state the *rubra* to be identical, if I were to find some little difference in the seeds of that plant, and indeed it would appear that the seeds of *rubra* do vary most strangely, as they are described by Leighton and others as being angular, whereas all that I have seen are somewhat pyriform; perhaps the *Arenaria rubra* described by authors may be a plant which I have never seen, as it would appear that the *rubra* of authors is something very like *marina*, since Mr. Babington tells us that he is inclined to believe them to be two species, but that he has been unable satisfactorily to distinguish them, ('*Primitiæ Floræ Sarnicæ*,' p. 16). So far as regards the *Monotropa*, I am quite willing to give up for a better one the name I have used to distinguish the two forms of that plant, and shall leave to botanists the decision of the question how far they may be distinct as species. I am well aware of the evil attending the introduction of additional synonymes, and am much surprised to find that botanists who ought to know better are carrying out the thing to the greatest length; as I see that we have in Baines's '*Flora of Yorkshire*,' published in 1840, a description of *Aira cæspitosa*, var. *β. rigida*; in Leighton's '*Flora of Shropshire*,' published in 1841, we have an *Aira cæspitosa*, var. *β. major*; in the Edinburgh Botanical Society's Catalogue, second edition, 1841, we have an *Aira cæspitosa*, var. *β. vivipara*; and if we look into a few works on our British plants, we shall find that in many instances the same plant has a different name in each. In Lightfoot's '*Flora Scotica*' we have a plant under the name of *Arundo arenaria*; in the 4th edition of Withering's *Botany* we have the same plant called *Calamagrostis arenaria*, and in the 5th edition of the same work *Arundo arenaria*; in Gray's *Botany* it is called *Psamma arenaria*, in Smith's '*English Flora*' *Arundo arenaria*; by Sir W. J. Hooker it is called *Ammophila arundinacea*; in the Edinburgh Society's new Catalogue we find it to be *AMMOPHILA ARENARIA*. Should we wish to trace this plant into the works of continental writers, we shall find it under such names as *Spartum anglicanum*, &c. But as I have no wish to go beyond the bounds of my own country, I will trace the *Ammophila* a little further in the works of my countrymen; the above name I find used in 1802 for a *genus of Hymenopterous insects* by Kirby, the same name has been retained by Turton, Sowerby, Leach, Samouelle, Stephens, &c. The above name *AMMOPHILA ARENARIA* may be convenient to the Edinburgh Botanical Society for the *Sand-marram*, but for me as an entomologist it is not convenient, for if I consult Donovan on that subject, I find the very same name—*AMMOPHILA ARENARIA* applied to one of our *Sand Wasps*. And perhaps botanists will soon lose their antiquated generic name *Ficus*, as I see Mr. Cumberland of Bristol is now using it for a genus of *fossil Crinoidea*. The editors of the '*Annals and Magazine*' say that they trust they will not be thought presumptuous in hinting to me that a more frequent reference to the writings of continental botanists is desirable. In reply to this I would tell them (as it appears they have forgotten it) that all botanists are not equally fortunate in being so placed as to have an opportunity of consulting such books; and if I may be allowed to speak on the introduction of synonymes, we have a fine specimen of this in the *Shropshire Flora*. The four spe-

cies of *Arenaria* found in that county are there placed under four different generic names; the *Arenaria rubra* of Smith being *Lepigonum rubrum* in Leighton's Flora and the *Alsine rubra* of the Edinburgh Society's new Catalogue. — *Samuel Gibson; Hebden Bridge, August 15, 1842.*

214. *Note on Carex axillaris and remota.* Allow me to return my best thanks for the information given by Mr. Wilson on the two Carices, (Phytol. 299). I have carefully looked over the descriptions and separated the characters assigned to each; and leaving out all the superfluous matter they will stand thus:—

1. *Carex axillaris.* Leaves flattened. Bractees variable in length, second very small, with a membranous base, upper part rough, very narrow and awn-like, all of them auricled at the base. Rachis perfectly straight, with three rough angles. Glumes roundish-ovate, tipped with a very short rough point.

2. *Carex remota.* Leaves bent in at the sides, so as to be almost semicylindrical. Bractees generally with a pale very obscure ligula, passing completely round the common stalk. [Rachis] zigzag, in the upper part with two rough angles. Glumes ovate-acuminate, narrower than the fruit.

Mr. Wilson tells us that the rachis in *remota* is zigzag, and in *axillaris* perfectly straight. Dr. Wood tells us that the lower bractea in *axillaris* forms as it were a continuation of the stem as regards its direction. Now if the Dr. be correct in this point the stem must be pushed out to give room for the spikelet, and therefore would be at variance with Mr. W.'s straight rachis. Mr. W. tells us that the leaves in *axillaris* are flat, the Dr. tells us that they are channelled—but stop, perhaps I am leaving out something of importance, he says “plane though channelled,” &c.; here I am a loss to know how a plane leaf can be channelled. Whatever praise might be due to Dr. Goodenough from his first paper on our British Carices, I do think that he robbed himself of such praise by writing the following passage.—“I have stated *axillaris* as having the capsule divided at the summit, and *remota* as having it entire; but this is not constant. I believe all Carices dispose of their seeds by the opening of the point of their capsule, this opening is observable in some very early, in others not till quite old. In the former the capsule is described as opening; in the latter, because it is not seen but in very advanced age, it is mentioned as closed.”—(Trans. Linn. Soc. iii. 76). Whatever Mr. W. may think of the above passage, it was written when the subject had, or at least ought to have been, fully investigated. However Mr. W. may be surprised at my opinion on what Dr. Goodenough has said on the capsules of our Carices, I now say that if ever he had investigated the fruit of one *Carex*, he would have known that when the fruit is first formed, that the opening, if there be any, is very conspicuous, and may be seen surrounding the style, with the stigmas protruding therefrom; and as soon as the capsule is discernible, it will be seen whether its beak be entire or cloven, as it never changes in that respect after it is first formed. So far as regards my quotation from the ‘English [British] Flora,’ I would ask Mr. W. if Sir W. J. Hooker had not accurately described *C. axillaris* in the first edition of that work, or has he corrected himself in order that his description may better agree with that of Sir James Edward Smith? Mr. W. tells us that the bractees in *C. axillaris* are by no means constant in their length; if he be correct in this, Sir W. Hooker had made no mistake, and therefore we could have no need of any such correction. Mr. W. tells us that the passage I have quoted from the ‘English Flora’ without the word “perhaps,” is sheer nonsense; I would say that the passage as it stands in the ‘English Flora’ is something very like nonsense, for it amounts to nothing more than to say it

may or may not be so. What Sir J. E. Smith might have had in his mind when he wrote the passage I know not; but I do disapprove of the use of such passages in descriptions of plants. But as I have said before, in my enquiry on the two species of *Carex*, my real difficulty in making out the two may perhaps arise from my never having seen them both; but here I must say (omitting Dr. Goodenough's description of the capsule of his *remota*), that I have specimens in my possession that will answer to every description that I have seen, and many other forms that are not described at all in any work. Our *Carex axillaris*, *remota*, *angustifolia*, *cæspitosa*, *aquatis*, *stricta*, *acuta*, and others, require a strict investigation, in order that the species may be correctly made out, and the mere varieties arranged as such. To describe the extremes of any variable plant is quite easy, but when we have got a regular gradation from the two extremes, then the difficulty occurs.—*Id.*

[We trust that the discussion on this subject will now be allowed to terminate: had Mr. Gibson's only object been to obtain information on a doubtful point, he would, we think, have been satisfied with acknowledging that already afforded, which appears quite sufficient to enable any one to distinguish *Carex axillaris* from every state of *C. remota*. We have thought it unnecessary to extend Mr. Gibson's paper beyond its present limits, by printing some remarks therein contained on two specimens of *Carex remota* which accompanied it: the only difference we can perceive between these specimens is, that one is rather more slender than the other.—*Ed.*]

215. *Note on the Stomata of Equisetum hyemale.* I would remark on what is said of the stomata of *Equisetum hyemale* (Phytol. 278), that they are immersed in *cavities*, not in elevated disks. There are two series of stomata in each furrow, one immediately on each side of the ridge, and somewhat concealed under it when in a dry state. The structure of *E. variegatum* is similar, but less conspicuous.—*W. Wilson; War- rington, Aug. 15, 1842.**

ART. LXXXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 5, 1842.—John Reynolds, Esq., Treasurer, in the chair. The following donations were announced:—British plants from the Rev. T. Butler, Mr. John Pearson, Mr. Arthur Henfrey, Miss Anna Worsley and Mr. Samuel Freeman. American plants from Mr. O. Rich. British Mosses from Mr. I. F. Hollings. Specimens of *Schistostega pennata*, collected in Nottingham forest by Mr. Joseph Sidebotham, were exhibited and presented by him.

A note was read from Mr. Adam White, stating that he had found specimens of *Dentaria bulbifera* in Chesham Bois Wood, Buckinghamshire. Mr. Thomas Sansom, Librarian, exhibited a monstrosity of *Rosa centifolia*, Linn., in which a second flower was developed from the centre of the first. Mr. W. H. White communicated a paper, being a Report of the botanical state of the Mauritius; translated from the Eighth Annual Report of the Natural-History Society of that island.—*G. E. D.*

* In a letter to E. Newman; who begs to thank Mr. Wilson for this very necessary and important correction, and requests the reader will also correct a repetition of the error at p. 308 of the present number.

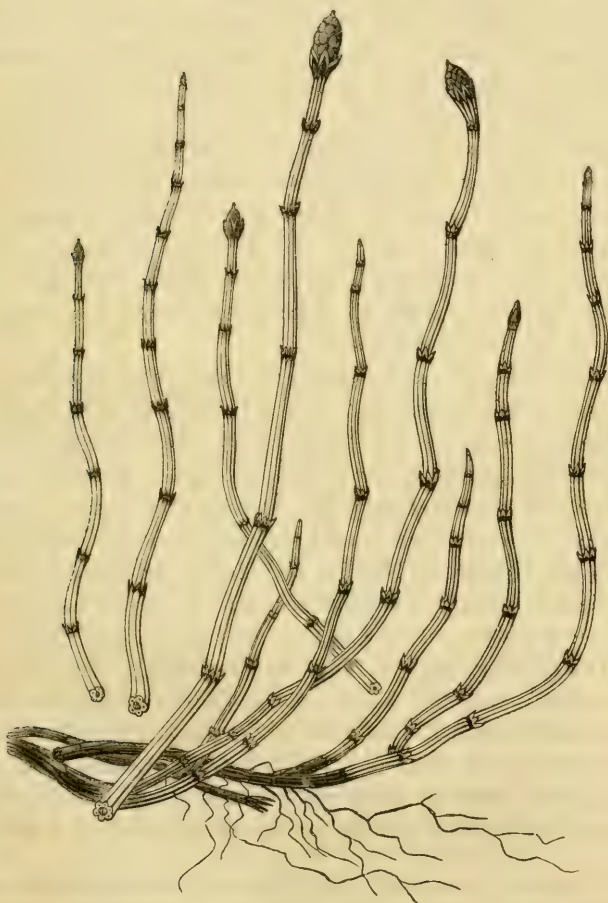
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ART. LXXXVII.—*A History of the British Equiseta.* By EDWARD
NEWMAN. (Continued from p. 308).



VARIEGATED SHAVE-GRASS.

EQUISETUM HYEMALE, γ . VARIEGATUM.

Equisetum hyemale, Linneus, (who gives Bauhin's *E. nudum minus variegatum basiliense*, as a synonyme), Sp. Plantarum, 1517.

Equisetum variegatum (Schleicher's Catalogue) Willdenow, Smith, Hooker, &c.

Equisetum reptans, Wahlenberg.

Equisetum ramosum var., Decandolle (on the authority of Vaucher).

Equisetum multifforme, Vaucher.

THIS, like the preceding form of the species, is local, occurring generally on dry moveable sand in the immediate vicinity of the sea : when in moist situations it assumes a somewhat altered appearance, but the example figured is, I think, a faithful representative of the plant when growing in dry sand.

In England it occurs at the mouth of the Mersey ; I have repeatedly observed it on New Brighton sands on the Cheshire side, and the Bootle sands on the Lancashire side : it is tolerably abundant also at Southport, in the latter county. In Teesdale it has been found in several spots, more particularly on Widdy Bank, and about Winch Bridge : the specimens from this locality are much less rough to the touch than those from the Mersey.

In Scotland it occurs on the sands of Barry, near Dundee ; also in Rosshire, and in Kincardineshire on the banks and in the bed* of the Dee, intermixed with the two forms of the plant already described ; the specimens are generally much more elongate, and like those from Teesdale are also smoother than the Mersey specimens. In Ireland it is abundant in several sea-coast localities, more particularly at Port Marnock in the vicinity of Dublin, and also in the Dublin Canal.

For specimens from these localities, and for much valuable information respecting them, I have to acknowledge my best thanks to Dr. Greville, Dr. Balfour, Mr. Wilson, Mr. Babington, Mr. Gibson, the Rev. Mr. Brichan, and Mr. Moore of the Dublin Glasnevin Garden.

The roots and rhizoma, like those of *E. Mackaii*, present no characters by which I can distinguish this from the normal form of *hyemale*. Like the roots of many other plants when growing in loose sand, those of the present variety are frequently clothed with a quan-

* An error occurs in a quotation from the Rev. Mr. Brichan's letter, (Phytol. 306); instead of " what is usually called the bed of the river," it should have been " what is usually the bed of the river." The meaning is this, " that the Dee has this season, owing to the excessive heat, sunk so far within its usual bounds, as not to cover what is usually its bed." That part of the Dee in which the *Equiseta* occur is in the county of Kincardine, not of Aberdeen.

tity of matted fibrillæ: the stems are short, often semiprostrate, and the internodes are short and frequently somewhat arcuate, giving the entire stem a sinuous appearance. The figure represents the plant of the natural size; the four detached stems being portions of rather more elongate specimens: both the sheaths and internodes are striated; the striæ are few in number, six or eight may be taken as the average: under a microscope the cuticle precisely resembles that of the varieties already described: the ridges are grooved, the grooves being margined on each side with a longitudinal series of minute flinty tubercles: in the furrows are two longitudinal series of stomata placed very near the ridges, indeed so near, that in stems dried in an immature state, they are frequently partially obscured by the ridges. Mr. Wilson, whose surpassing accuracy deserves the thanks of all botanical students, has pointed out a very decided error in my prior descriptions, in which I have stated the stomata to be placed *on the ridges* instead of *in the furrows*. On receiving Mr. Wilson's note, correcting this error, I carefully re-examined the specimens, and found that my published description was erroneous, and Mr. Wilson perfectly correct. The lower portion of the sheaths is perfectly concolorous with that of the internode, the upper portion only is black, thus causing the sheath to appear much shorter than in the varieties previously described: the teeth are short, wedge-shaped, and commonly without the setiform apex which distinguishes the variety last described: their edges are membranous, occasionally black, as represented in the detached stems to the left of the figure, but usually white, giving the plant that variegated appearance from which its name has probably been derived. The catkin is small, apiculate, terminal and striated, as in the preceding varieties; its scales are few—eighteen to twenty-five in number.

The stem of this variety is much less liable to become branched than either of the preceding, still this branching occasionally occurs; in the margin I have represented a New Brighton specimen bearing a branch; the black colouring of the sheath in this specimen extends much lower than is usual, yet the teeth remain wedge-shaped. Specimens occasionally occur in the same habitat repeatedly branched, and much more luxuriant than the one figured. Of one of these in his own herbarium Mr. Wilson has kindly furnished the following description.

"I have some specimens of *E. variegatum* from New Brighton, opposite Liverpool, which are very much branched, and very tall; but



even in these I can find only two branches at any one joint. I will describe one of the best marked of these. Height 22 inches, of which $2\frac{1}{2}$ inches is black, having been buried in the ground to that depth, and rather more. At $2\frac{1}{2}$ inches two *opposite* branches (A A) shoot out, with *rooted bases*. At the next joint are two other *opposite* branches

(B B) placed at right angles to the first pair A * A with respect to the axis.

At the next joint are two other opposite branches, as in A A, and at the next joint is another opposite pair, as in B B. The right branch, A, at the seventh joint, has two branches, which are contiguous or nearly so (not opposite), and two more at the ninth in the same condition; two opposite ones at the tenth joint, one branch having the same direction as the two lower branches. In this specimen the main stem is broken off at the height of seven inches; the second primary pair of branches has also one branch ramified, but less remarkably so than the one which I have already given in detail."

Mr. Moore's specimens of the Dublin plant were accompanied by the following note. "There is a third plant* which claims attention. it occurs near Dublin, growing in water, upright, and to a much greater size than *E. variegatum* in its usual state, and it possesses the other characters noticed in Hooker's 'British Flora,' 4th edition, p. 394, † as distinguishing the plant found by Mr. Wilson at Muckruss. This species or variety, whichever you please to call it, appears to adhere to its natural habit when subjected to cultivation, under which state I have had it about six months, and the new fronds are getting much stronger than those which the plant produced naturally. Although entirely removed from the water it grows quite erect, and continues smoother, with the same number of striæ." I do not agree with my much-esteemed correspondent in thinking the Dublin and Muckruss plants identical, still the Dublin plant is very different from the usual *variegatum* form, and nearly resembles the specimens from Kincardineshire already alluded to.

EDWARD NEWMAN.

(To be continued).

* The usual forms of *Mackaii* and *variegatum* are the other two plants noticed in Mr. Moore's letter.

† "At Muckruss Mr. Wilson finds this plant growing in water and upright to thrice that size [6—8 inches long], with a *stem* smoother, about 10-furrowed and more polished in the furrows, and the *sheaths* not so conspicuously nor so constantly furnished with acuminate *teeth* or summits as is usual in the ordinary state of the plant."—Br. Fl. ed. 4. 394.

ART. LXXXVIII.—*On the nature of the Byssoïd Substance found investing the Roots of Monotropa Hypopitys.* By THOS. G. RYLANDS, Esq.

ALTHOUGH I feel, and with much more cause, the diffidence experienced by Mr. Newman in expressing an opinion on a subject so difficult as the present one, yet, when after an investigation conducted with the utmost care and deliberation, and extended over many hours, I have arrived at results the most constant and apparently decided, I feel that it is not only desirable, but my duty, to publish them: and moreover, it seems but right, since the matter has proceeded thus far, that it should not be abandoned till some decision be recorded. It is on these grounds that the following remarks are produced to the public.

The opinions already expressed in 'The Phytologist,' relative to the nature of the byssoïd substance found on the roots of *Monotropa*, from all stations that have supplied specimens for examination, are as follows.

Mr. Luxford refers them to a "byssoïd fungus," (Phytol. 43); Mr. Lees regards them as "suckers," (Id. 171); Mr. Wilson suggests that they may be "the woolly matted extremities of grasses,"* (Id. 149); and Mr. Newman believes them to be essentially the root, (Id. 297). To these, in the first place, I will add a detail of my own investigations, and then proceed to compare the results of all. Having arrived at the conclusion that the "claviform branches" of the "rhizoma" were the true roots of *Monotropa* (Id. 329), the minute fibres now under consideration were only examined in connexion with Mr. Lees' idea that they were spongioles or suckers, and then thrown aside: but on the publication of Mr. Newman's observations, to whose kindness I am indebted for specimens of the plant from Shoreham in Kent, and Hurstperpoint in Sussex, without which I should have been ill prepared for my present essay, attention was again directed to them, and the following is the result.

Viewed with a magnifying power of about 30 linear, the byssoïd substance presents an appearance not unlike that of unsized paper seen under similar circumstances. It consists of an irregularly matted mass of flocculent matter, more or less depressed, investing the roots of

* It is but just to my friend Mr. Wilson to state here that after a more careful investigation his opinion is, in the main, in strict accordance with the results of my own observations. Nor would I omit to acknowledge how much confidence the accession of one whose authority is so deservedly high, has imparted to my mind.

Monotropa, and occasionally other substances in its vicinity. Usually it is present in such quantities as to render the examination of it an operation exceedingly difficult; on the Southport specimens it is sometimes much less abundant, but even in these cases it was not till after repeated examination that the real nature of its connexion became satisfactorily apparent. The fibres of which it is composed are nearly equal in thickness throughout, irregularly branched, and united *by lateral adhesion, at intervals*, to the substance on which they are found: this union, in several instances, was so complete, that when the fibres were forcibly detached, a very small portion of the body with which they were connected was separated with them; in no case, however, was this operation performed but a continuation of the fibre became evident, as seen at *n, o*, fig. 2. Evidence of a *terminal* connexion or thickened extremities was seen in no instance.*

In order more fully to test the correctness of these observations, the roots of other plants were appealed to: several from the greenhouse which were matted owing to the small size of the pots in which they grew, were examined; but in these a marked distinction was evident, so much so, that at first sight I should have had no doubt of their origin, they possessed in every particular the appearance of spongioles: while the *really* fungoid matter found on the roots of groundsel, Epilobium, Plantago &c., had so much resemblance to the substance in question, that it would be difficult by words to render the difference appreciable.

Thus far had I proceeded when by the application of a magnifying power of about 350 linear, I became aware that the fibres on the Southport plant were of two very different kinds; and, on examination, the specimens received from Mr. Newman afforded, at least, a third. This I regard as a somewhat forcible argument in favour of the opinion that they are altogether extraneous; for all the species are similarly attached, and I apprehend that no such differences as those about to be described would be likely to occur in the roots of one plant.

The species observed are as follows:—

No. I. — Filaments tufted, fasciculate, more or less adnate, membranaceous, slightly tubular, jointed, irregularly branched, colourless.† (Fig. 1, *c, d, e*).

Found only on Mr. Newman's specimens from Shoreham.

* These results were obtained with powers of about 100—200 linear.

† The Sussex specimens from Mr. Newman supply a filament differing from these; but as the one had been some time dry before examination, and the others were viewed in a fresh state, I have preferred leaving it undescribed.

Were further proof of a lateral connexion necessary, the fact that the filaments, when not in contact with any other body, are found thus attached to each other, might supply it: in the species most thoroughly adnate they frequently adhere throughout their whole length; (see *d, e*, fig. 1).

No. II.—Filaments spreading irregularly, adhering at intervals, horny, smooth, distinctly tubular, and divided by septa, from which are produced the hemispherical buds of the branches? (*g*): branches nearly at a right angle. Of a rich brown colour. (Fig. 2, *f, g, m, n, o*; Fig. 3, *x, y*).

Found in moderate quantities on most of the portions examined, exterior to the other species.

No. III.—Filaments agglutinated or interwoven together, pellucid, with slight traces of a cellular structure, rarely dichotomously branched; accompanied by numerous subspherical tuberculated or granulated bodies (sporidia?), which have on their depressed surfaces a circular lucid disk. (Fig. 2, *h, i, k, l*).

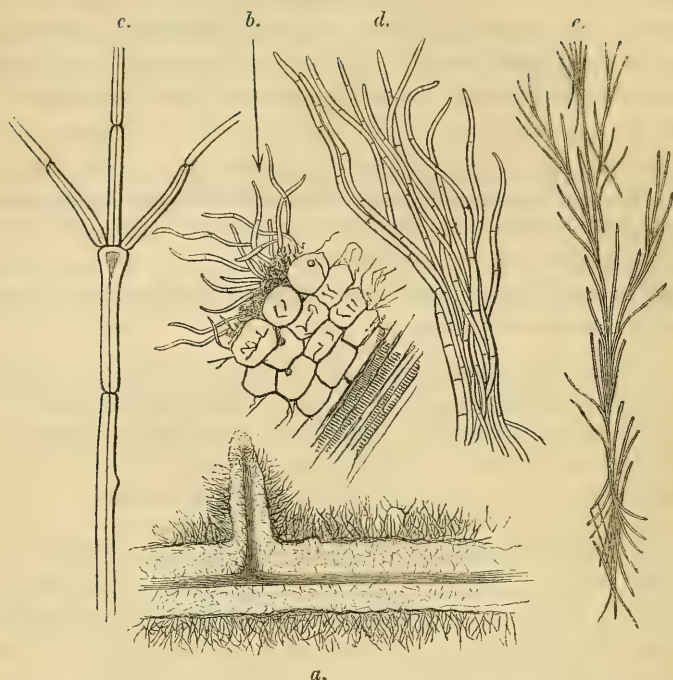
Found only on a portion of the Southport specimens.

To Mr. Wilson I am indebted for calling my attention to the spheroidal bodies; they were not observed during my examination of Southport plants, gathered three weeks after his, and as they are objects far from likely to be overlooked, I suppose they were not present: the fibre to which they belong was there in abundance. Specimens from Southport gathered in 1841, kindly supplied by Mr. Wilson, having the filaments, are likewise without the sporidia.

All my attempts to discover actual proofs of an organic connexion of these globules with the fibres among which they are found, have been unsuccessful: though from several circumstances observed, such as that the filaments are frequently flattened, and have occasionally in the depressions the appearance of scars (fig. 2, *i*), I have little doubt that such does exist, the transparent disks being the point of union. Fragments of one or two other kinds have been met with, but not in quantities to supply the characters for a description. The three given will suffice.

Such are the data on which I would ground the opinion that the "bysoid substance" is really fungoid, and performs no essential function in the economy of the *Monotropa*. Each of the operations has been often repeated, with all the care and diligence I could command. Sections in all variety have been viewed, wet, moist and dry, with reflected and transmitted light; and though the results were in all cases the same, yet it should be stated that those were the most satisfactory in which the portion had been saturated with, and was examined

FIG. 1.



a, A section of the root of *Monotropa*, showing the internal continuation of the vascular tissue of the spongiole or fibril. *b*, A portion of the same highly magnified, to show the connexion of the flocci.

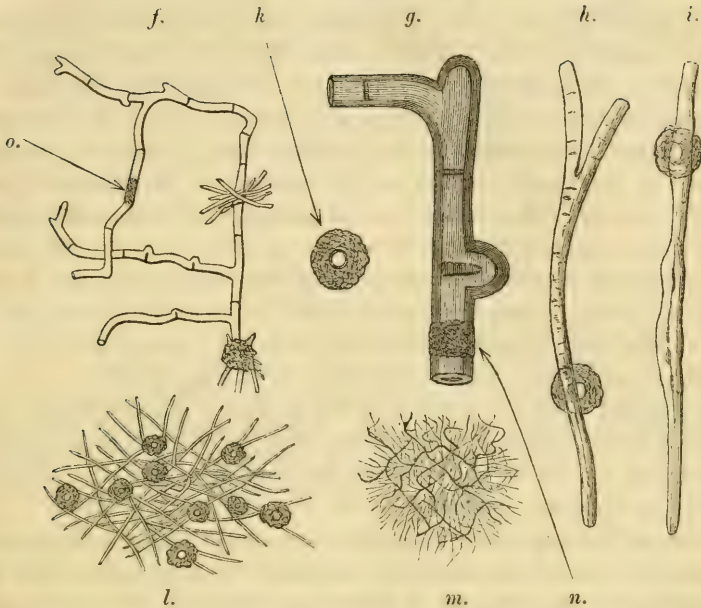
c, *Epiphagos Luxfordii*, highly magnified. *d*, *e*, The same, showing its adnate and fasciculate habit.

whilst immersed in, water. From the nature of the objects this might have been expected; for let it be remembered that six thousand of the filaments in juxta-position would but occupy an inch, and moreover, that so delicate and tender is their texture, that the air of a room, or even the dryness ordinary to the atmosphere at this season, causes them speedily to shrivel and contract. The advantages of this mode of examination, and its efficiency, are admitted in regard to other members of the class.

In reply to Mr. Newman's reasons for believing them a portion of the *Monotropa*, I would say:—

Firstly.—Its presence—if he refers to *a* byssoid substance generally—is, as far as we can judge, scarcely more “constant” than other species of fungus, when the circumstances are suited to their growth;—putrefying paste has *constantly* its *Mucor*. On some portions of the Southport plant it was not present at all; if the species found on the plant from Shoreham alone is intended, and such

FIG. 2.



f. *Zygoznesmus Berkeleyi*. *g.* A portion of the same, highly magnified. *n, o.* Supposed to be the adhesive portion; this appearance occasionally continues the whole length of the flocci.
h, i. *Sepedonium Wilsoni*, highly magnified. *k.* One of the sporidia. *l.* Portion showing the adnate habit. *m.* *Sepedonium Wilsoni*, showing *Zygoznesmus Berkeleyi* exterior to it.

would appear the most forcible argument, it was not on the Southport plant in any case.

Secondly.—From the examination of analogous productions, I am led to believe that the structural and habitual “uniformity of its growth” is such as to strengthen the idea that they are fungi, rather than to prove them the roots of a phenogamous plant.

Thirdly.—That although, when viewed partially dry, the substance of the rhizoma and these fibres may “*appear* perfectly continuous and identical,” yet, when distended, every trace of such appearance is lost; nor does a longitudinal section of the rhizoma display any signs of an internal continuation of the fibres, which, if they were indeed the fibrillæ of the root, might be expected. Such *is* the case with the claviform branches before mentioned, (fig. 1, *a*).

Fourthly.—That in no instance, either sectional or otherwise, could any “rupture of the cuticle” be produced, except such as already explained, and shown on *f* in fig. 2.

In reference to Mr. Lees’ opinion that the fibres are “suckers,” I

would remark, that those portions which are produced on the root of *Monotropa* itself, under ordinary circumstances, labour rather to maintain their connexion with it than to unite with other substances : and would refer to their structure as one not at all supporting his idea.

In conclusion, I would urge upon Mr. Luxford the more thorough examination of specimens from the locality where “the slowly decaying leaves of the beech” in the neighbourhood of *Monotropa*, “are generally covered with a white byssoid fungus.” That such is their nature not the slightest doubt now remains in my mind ; I regard them as an interesting addition to our Cryptogamic vegetation, and hope that the following attempt to assign them “a local habitation and a name” among their fellows, undertaken as it has been at the express desire of several parties, will not be deemed an impropriety.

In proceeding with this portion of the subject I felt that there was no small difficulty to be overcome, not only on account of the intricate nature of the order, but from the fact that our knowledge of mycological productions generally, is so exceedingly imperfect. So great however was my desire lastingly to associate with the discovery the names of those gentlemen who originated or have assisted in it, that I applied to the Rev. M. J. Berkeley, enclosing him specimens and sketches. To his kind attention and assistance I am indebted for a knowledge of the genera *Zygodesmus* and *Tubercinia*, and several other particulars, without which I could not have approximated so nearly to the truth.

EPIPHAGOS Luxfordii, (Ryl. MSS.) Fig. 1, c, d, e.

This I have applied as a provisional name to No. 1 — the species observed by Mr. Luxford on beech-leaves and *Monotropa*. There is much reason to believe it an undescribed genus, probably a byssoid Alga ; but owing to the total absence of fructification its position cannot be positively determined. It is to be hoped that at some future period Mr. Luxford will be fortunate enough to meet with fertile specimens.

No. 2, Mr. Berkeley informs me, is certainly a *Zygodesmus* (a genus of Corda, characterized as follows) : —

Tribe.—MUCEDINES.

ZYGODESMUS. Flocci creeping, branched, entangled, septate or suddenly staple-bent so as to form a geniculus (“geniculati-contracti”),* and afterwards paired by

* There appears to have been some mistake in the application of this phrase, at least as regards the species now described, though Mr. Berkeley’s sketch of it exhibits

branches or geniculi developed at right angles, otherwise one floccus coupled with another: sporidiferous branchlets erect or wart-shaped: spores acrogenous, simple, at length irregularly scattered: episporium membranaceous, smooth or hairy; nucleus solid.—*Corda, Icon. Fung. pt. 5.*

Z. Berkeleyi, (Ryl. MSS.) Flocci spreading, horny, brown, branched, with hemispherical swellings ("geniculi") produced at many of the septa, from which originate the branches? Sporidia oval or ovate, smooth; nucleus simple. Fig. 2, *f, g*, and 3, *x, y*, (the sporidia).

On *Monotropa* roots generally.

No. 3 is also an undescribed species.

Tribe.—SEPEDONIEI.

SEPEDONIUM, *Link.* Sporidia globose (filled with sporidiola), at first covered by the flocci of the fleecy mycelium.† *Eng. Flor. vol. v. pt. 2, p. 350.*

S. Wilsoni, (Ryl. MSS.) Flocci fleecy, interwoven or fasciculate, adnate, pellucid, white, rarely dichotomously branched: sporidia globose, tubercled or granulated, not appendiculated, but attached by the disk on their flattened surface? Fig. 2, *h, i, k, l.*

On *Monotropa* from Southport.

Since the former portion of this article was written, I have examined a dried specimen of *Monotropa* gathered at Streatley, Berks, sent because it had the flocci considered to be roots, growing on its capsules and stem; on examination I found the following:—

Tribe.—DEMATIEI.

CLADOSPORIUM, *Link.* "Sporidia arranged in" (more or less) "moniliform branchlets, at length falling off; flocci septate (above"?). *Eng. Flor. vol. v. pt. 2, p. 338.*

C. Leesii, (Ryl. MSS.) Flocci spreading, pellucid, straw-coloured: sporidia of various sizes, contained in branchlets, which are at length moniliform and septate? yellow, as the flocci. Fig. 3, *p, q, r.*

the character. The "geniculi," viewed with a power of 350 diameters (by Ross), appear to be only tumours; the outline of the floccus opposite them is perfectly continuous, and what have been considered contractions or doublings seem but to be septa left in some measure free by the swellings. Vide fig. 2, *g.*

† As this species is allied to a parasite of *Monotropa* already described, though not to be found in the 'English Flora,' it may be well to add the description as given by its discoverer.

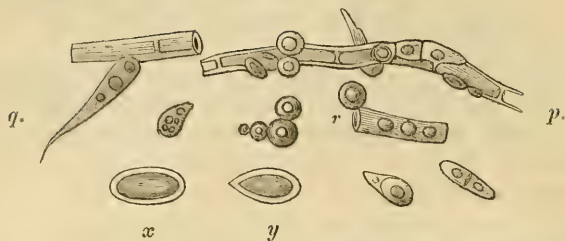
TUBURCINIA, *Fries.* Sporæ rotundatae, inæquales, opacæ; sporidiis minimis, succedentibus farctæ, plantis putridis innatæ; floccis variis, tenellis, intertextis, evanescentibus, primo adherentibus.

T. Monotropæ. Erumpens, sporis nigro-fuscis inæqualibus flocci evidentioribus.

Præcedenti (*T. Orobanchæ*) affinis, sed magis superficialis est, et erumpens, sporidia fuscescent, et flocci copiosiores adsunt.

Genus quoad fructificationem ad *Sepedonium* accedit.

FIG. 3.



p. *Cladosporium Leesi*, showing the structure of the flocci, and a septate sporidiferous branchlet.
q. Sporidiferous branchlet in a younger stage. *r.* A portion where the sporidia appear to have been
 matured in the main portion of the floccus. The four figures not referred to are various forms of sporidia.
x, y. The sporidia of *Zygodermus Berkeleyi*.

It is with no design to forward my own views that three of the four species are placed in genera already recognized; my feelings were for long opposed to this, but after mature examination I could find no differences sufficient whereon to found new characters. It is true, that two of the species do not *perfectly* accord with the genera in which they have been placed, such having been constructed with reference only to the kinds then known; so slight however are the discrepancies, as will be seen by the parentheses, that I have deemed it but prudent to admit them.

THOMAS G. RYLANDS.

Bewsey House, Warrington,
 September 14, 1842,

ART. LXXXIX. — *Analytical Notice of the 'Transactions of the Botanical Society.'* Vol. i. pt. ii. Edinburgh: Maclachlan, Stewart & Co.; H. Bailliére, London. 1841.

(Continued from p. 322).

VIII. *On the Botanical Characters of the British Oaks.* By R. K. GREVILLE, LL.D., F.L.S., &c., Vice-President of the Botanical Society.

For three years previously to the publication of this paper the author was engaged in the examination of the British oaks, with a view to ascertain the characters by which each so-called species may be distinguished from its congeners: the results of this investigation are here published. The paper is accompanied by two plates, wherein are delineated the most striking forms of leaf which have come under the author's notice, together with the peduncle and young fruit; and

the author observes that "in an extensive series of specimens, these forms are united by intermediate links." In his preliminary remarks he also states :—

"When I first approached this subject with a view to ascertain the value of the characters by which the British Oaks are supposed to be distinguished, I was under a strong impression, that at least, the two forms recognised as species under the names of *Robur* and *sessiliflora* were really distinct. But I soon found that the ascribed characters were of little importance in rigid specific discrimination, and that the only one of any value at all, viz., the sessile or pedunculated fruit, must be received with so much latitude as greatly to weaken, if not to render it entirely unworthy of confidence."—p. 65.

The following remarks are made on "the characters supposed to reside in the leaves."

1. The petiole in *Quercus Robur* is said to be short; that is, in the form so called the petiole is supposed to be shorter than in either *Q. sessiliflora* or *intermedia*. In two of the figures "which certainly do not represent *Q. Robur*, they are shorter than in several of the forms which undoubtedly belong to that plant."

2. The *general* outline of the leaf. This cannot be defined "so as to distinguish any of the forms as species, as they run insensibly into each other. Nay, some of the forms in *Q. Robur* are absolutely repeated in *Q. sessiliflora*."

3. The characters supplied by the *strict* outline of the leaf and of its several parts, appear to be equally unsatisfactory. "The base varies equally in all the forms." "In *Q. Robur*, although generally more or less bi-auriculate, it is sometimes rounded, and even attenuated," and such is the case in *Q. sessiliflora* also. No greater importance is to be attached to the pinnatifid character of the leaf; the lobes of the leaf too "are sometimes rounded, when the sinuses are acute, and *vice versa*; and sometimes both lobes and sinuses are obtuse, at others both are acute." The starry pubescence attributed by Prof. Don to *Q. intermedia*, the author finds to be present in the young state of almost all the forms he has figured, and it may be traced in nearly the whole series of his fully developed specimens.

"If the leaf be taken in conjunction with the peduncle, no character whatever is afforded; and I agree with Mr. Leighton, who has truly remarked that the leaves of our oaks 'vary without the least reference to the absence or presence, or relative length of the peduncle.' If the peduncle alone be taken as a guide, we shall in vain search for an immutable character, for every intermediate state is to be observed between the elongated peduncle as I have it from Cumberland, 5 inches long, and from Killin, above 4 inches long, to its total absence.

“When the peduncle becomes shorter, it is generally thickened or distorted; and when present, as it often is in *Q. sessiliflora*, it is very short and robust. It would appear, that in proportion as the peduncle deviates from the normal state, as we observe it in *Q. Robur*, and becomes more and more contracted, the acorns (no longer produced at the usual intervals) are developed in a clustered manner, till at length the peduncle becomes so short, as to render them almost, if not really sessile. The acorns of the British oaks are as sportive as the leaves; so that no characters which have been hitherto employed, taken singly or in combination, seem to be available for separating our native oaks.”—p. 67.

“Were we to be guided by the result of such an examination as I have been able to institute, into the characters hitherto employed for botanically distinguishing the British oaks, we should be led to conclude that we certainly possess only one native species. At the same time, it is quite possible that characters may have been overlooked, which may really suffice to separate them. A remarkable difference in the timber has long been observed, that of *Q. sessiliflora* being termed Red Oak,—that of *Q. Robur*, White Oak, from the colour of the wood. The relative merits of the two kinds do not seem to be quite satisfactorily established; but the greatest weight of testimony seems to be in favour of red oak (*Q. sessiliflora*), contrary to the expressed opinion of Sir J. E. Smith.

“It may still be a question whether the superiority of the one timber over the other depends upon the specific difference of the tree. The subject is one of vast practical importance, and still requires much investigation. It has not been in my power to examine the wood of the trees from which my specimens were obtained, and therefore I am unable to throw the smallest light on this part of the subject. My only object at this time is to show, that the received botanical characters by which *Q. Robur*, *Q. intermedia*, and *Q. sessiliflora* are at present distinguished, pass insensibly and completely into each other, and cannot therefore be depended on, in collecting acorns for seed, and supplying the dock-yard with timber.”—p. 68.

IX. *On the Vegetation and Botany of the Island of Madeira.* By JAMES MACAULAY, A.M., M.D., *Foreign Secretary of the Botanical Society.*

THE author observes that the island of Madeira “may be termed a *Transition* station between the European and the African vegetation, and intermediate between the temperate and intertropical regions of botanical geography.” In character its Flora appears to be most allied to that of the northern shores of the Mediterranean, notwithstanding the situation of the island off the African coast, between 32° and 33° N. lat. Many of the plants however are species not found in Europe, although they belong to European genera; some species are peculiar to the island, while others are common to Madeira, the Canaries and the Atlantic isles.

“The scenery is of the most glorious character, both as respects the beauty of the cultivated parts and the sublimity of the mountain districts of the island. In the interior, and on the north coast especially, the traveller meets with combinations of natural objects such as in no other part of the world can be witnessed, and which oblite-

rate every conception that had previously been formed of the grand and sublime in scenery. This is greatly the result of the geological character of the island. The mountains have not the integrity of outline and tame regularity of form that always appear in some of the formations of older geological epochs, but are composed of the most recent basalts and other igneous rocks; and, on a scale of alpine magnificence, present a scene of the wildest confusion, being everywhere deeply riven by rugged ravines, the precipitous cliffs of which are clothed to the very summit with ancient forests. Among these wild scenes there occur landscapes of the utmost loveliness, so that the scenery is altogether perhaps the finest in the world.”—p. 71.

The climate and temperature of the island are quite as varied as its scenery. In sheltered spots on the south coast there is a tropical temperature, and there the climate remains more genial than an English summer; while “on the opposite coast, and in the interior of the island, the mountains are covered with snow, and all the rigour of a northern winter is experienced. Between these extremes every degree of climate is met with, and the range of vegetation varies accordingly.” The author mentions some of the peculiarities arising from these varieties of climate, in connexion with the changes of the seasons.

“During the winter the residents on the coast look up from amidst their tropical vegetation and genial temperature, through every degree of climate and verdure, to the bleakest desolation on the snow-covered hills above them. In the declining months of the year, again, while on the coast the summer foliage is yet unaltered, and the influence of the sun little diminished, the upper parts of the landscape present the variegated tints and the fading foliage of autumn.”—p. 72.

The author gives the following as “the most marked zones of botanical climate on the south side of the island.”

“1. Region of Heaths—beyond 3500 or 4000 feet above the sea. *Erica arborea* is the most characteristic plant of this climate.

“2. Region of Laurels—from 3000 to 4000 feet. *Laurus indica*, *Laurus Til*, and other indigenous evergreen forest trees chiefly clothe the mountains in this zone.

“3. Region of European Trees—from 2000 to 3000 feet. Forests of chesnut and other trees introduced from Europe here principally flourish.

“4. Region of the Mediterranean Flora—from 1000 to 2000 feet. In this zone the plants of Southern Europe abound, and numbers of the trees and flowers of temperate climates have been introduced. The upper limit is marked by the vine being scarcely cultivated beyond 2000 feet above the sea.

“5. Sub-Tropical Region—from the level of the sea to 1000 feet above. The limit of this zone is well marked by a Cactus, the *Opuntia Tuna* of DeCandolle, which grows on the cliffs on the coast, and does not reach higher than 1000 feet.

“6. Tropical Region. In a few sheltered spots on the south coast many of the West Indian and other tropical fruits flourish.”—p. 73.

The following extracts are in accordance with an opinion we have frequently ventured to express, namely, that although elevation and climate doubtless exercise considerable influence over the vegetation of a district, yet that an influence fully as powerful is exerted by the character of the soil.

“The geological structure of the island is almost wholly volcanic, basalts and basaltic conglomerates and other igneous rocks forming the whole mass of the island. At one or two places there appear beds of tertiary limestone and other non-volcanic formations, but in so very small a proportion to the whole surface, as to have no effect upon the character of the vegetation.”—p. 72.

“The indigenous Flora is smaller than might be expected from the range of climate, the effect probably of the want of variety of soils, and the absence of other causes of difference of vegetation. The most conspicuous natural families are, the Filices, the Laurineæ, the Compositæ and the Labiatæ. Of the Ericææ, there are two plants which attain to a remarkable growth in the island,—*Vaccinium maderense* and *Erica arborea*. The whortleberry forms little thickets or forests on the mountain sides, often from fifteen to twenty feet in height. The heath grows everywhere on the mountains beyond 2500 or 3000 feet above the sea. On Pico Ruivo, the highest peak in the island, it commences at about 3500, and covers most of the mountain side to nearly the summit, which is more than 6200 feet above the sea. The stems are frequently six, and sometimes eight feet in circumference.* The wood is very hard, and is used for most of their common work by the peasants. The other indigenous forest trees chiefly belong to the Laurineæ. The *Laurus indica*, Vinhatigo of the natives, grows to an immense size. Its wood is of a dark colour, and of excellent quality, and is employed in various articles of work, under the name of Madeira mahogany. Of foreign trees, the most conspicuous is the chesnut, *Castanea vulgaris*, which was introduced by the early settlers; it forms fine woods on the lower parts of the mountains, especially in the interior, and on the north coast.”—p. 73.

X. *On the Specific Value of the Antherine Appendages in the Genus Viola.*

By EDWARD FORBES, M.W.S., *Foreign Secretary of the Botanical Society.*

MR. FORBES observes that “form is the chief if not the only source of *specific* character in the vegetable kingdom:” the higher divisions are founded on modifications of the *internal* structure of plants, but in characterizing minor groups and species, we ought rather to attend to the modifications of external form. The reason for this will be

* Sir J. E. Smith, in his ‘Tour on the Continent,’ says—“I never saw *Erica arborea* so truly arboreous as in this place, [between Frejus and Cannes]. It was often ten feet high, with a trunk three inches in diameter, much resembling, in form and size, the trees on Box-hill in Surrey. I am informed by Dr. Lind, that it grows to a much larger size, even 18 inches in diameter, on the Serra at Madeira, 5165 feet above the sea.”—i. 210, Ed. 2.

apparent when we consider that in plants, contrary to what obtains among animals, external form itself is often structure, or rather it is equivalent to the internal structure of animals: for structure being a modification of form for the performance of some function in the economy of the creature, "in animals such modification is usually an involution of form, in plants the reverse."

Naturalists are aware that in the lowest as well as in the highest groups, whether of plants or animals, there is no organ which is equally and uniformly available as affording distinctive characters. "For example, the shape of a leaf in one genus of plants may be common to all the included species, and therefore is not a specific character; in the next genus it may vary in each species, and the variation be constant in each, becoming the most evident source of distinction between the species." This depends on what Mr. Forbes terms "*the law of undulation of character*," that is, "either on the adaptation of organization to circumstances," or on "modifications of forms &c., of no importance in the animal or vegetable economy, though of great value as marks to distinguish one original form (that is species) from another. In the last case, the character is usually also *representative*, that is, it may be the *analogue* of an organ which plays an important part in some other species, group, or type."

The author has chosen the genus *Viola* as affording illustrations of his positions.

"Among the irregularly-flowered genera of the family of *Violariæ*, we often find certain of the stamina provided with dorsal appendages, styled by some botanists nectaries, which are lodged in the spur of the flower. In the descriptions of violets, mention is rarely made of these bodies, they being generally regarded as of generic importance only. Any one, however, who compares the nectaries of a pansy with those of a dog-violet, will see such a difference, as indicates a specific, at any rate, a sectional importance. In order to ascertain the value of the character so derived, I have compared minutely above seventy species of violets; and the results of such comparison, and their application to the elucidation of British Botany, I now lay before the Society."—p. 77.

1. *Form of Nectaries.* In the allies of *V. canina* they are *lance-shaped*,—the most common form; in the pansies they are *linear*; and the rarest form is the *rotund*, found in *V. palustris*. These are the only three forms in the genus; the first varies in length and breadth, the linear in length.

2. *Relations of Nectary and Spur.* The spur varies in proportion according to the form of the nectaries; "it is usually thick in proportion to its length, and very blunt," when the nectaries are lance-shaped. "The rotund nectary is associated with a very short

rounded spur, the linear usually with a long slender spur, often of great length, as in the pansies.”

3. *Relation of Nectary and Colour of Flower.* Mr. Forbes is disposed to consider that greater importance is due to colour in specific distinctions than is usually assigned to it.

“In the genus *Viola* blue, yellow, purple and white are the colours seen. The blue may again be divided into purple-blue and sky-blue, each passing abnormally into white, but the respective whites must not be confounded. The purple-blue may also pass abnormally into rose; but the sky-blue, as far as I am aware, never does. These distinctions are of importance in the investigation of nearly allied species, such as *V. canina* and *V. montana*. The yellow passes on the one hand into white; on the other, into purple. White is rarely the normal colour of a species of violet. The lancet-shaped nectary is chiefly associated with blue flowers, sometimes with the yellows passing into white, never with the yellows which pass into purple. They have always linear nectaries. The violets, which are normally white, derived from blue, have always lanceolate or rotund appendages, never linear. The odorous violets have always purple-blue, or its derivative white flowers, and always lancet-shaped appendages, but the colour does not necessarily imply the odour. The yellows which do not pass into purple have always lancet-shaped appendages. Among the dog-violets we find the lancet-shaped appendages lengthening in proportion to the mixture of purple in the blue, and the contrary in cerulean flowers, and their derivatives milk-white. All violets may be abnormally white, but the form of the nectary peculiar to the species, does not change with the change of colour in the individual.”—p. 79.

4. *Relations of Nectary and Leaf.* The cordate leaf in violets is generally associated with a lancet-shaped nectary, which is always found when the leaf is lanceolate or truly ovate, and sometimes when through being deeply lobed a cordate or rotundo-cordate leaf becomes pinnato-palmate. “A few cordate-leaved violets have linear appendages, and some of the pinnato-palmate; but all the pansies, or violets with ovato-spathulate leaves have linear nectaries.” In the stemless species with cordate leaves, “as the leaf becomes more and more rounded there is generally a tendency in the nectary to become shorter and shorter, whilst the contrary is often the case in such as have stems. Rotund appendages are associated only with reniform-cordate leaves.”

Mr. Forbes gives a tabular view of “the relations of leaf and nectary in seventy-one species of violets.”

5. *Relation of Nectary to Bractioles and Stipules.* The relation borne by the bractiole to the nectary is one of size, not of position,—the linear nectary being generally associated with minute bractioles: the stipules “are almost always large when the nectary is linear.”

6. *Relation of Nectary to Stem.* In the arborescent, and generally in the shrubby violets the nectary is lanceolate; in the more herbaceous stemmed species it is usually linear; while in most of the

stemless violets, including the odorous species, it is lancet-shaped, in a few only being linear.

7. *Geographical distribution of Violets, according to their Nectaries.*—

“Violets are found in most parts of the world, though their distribution is influenced materially by climate. The species from tropical countries are mostly from localities where the influence of elevation has neutralized or modified the climatal influence. The various sections of the genus have geographic centres, as may be seen in the congregations of the allies of *hirta* in North America, and of those of *tricolor* in alpine Europe. North America may be looked upon as the capital of the whole genus, since we find there representatives of all its subdivisions. In the following table the distribution of 75 species, according to the form of their nectaries, is exhibited :—

Lancet-shaped ..	Europe, 19	Asia 4	Africa 1	N. America 22	S. America 1	Australia 1	Total 48
Rotund ..	 2	 0	 0	 1	 0	 1	 4
Linear ..	 12	 4	 1	 6	 0	 0	 23

8. *Application of the above considerations to the arrangement of the Violets.*—

“To group the violets according to the form of the nectary, without considering the relation of that form to the other characters of the plant, would be to arrange them artificially and not naturally; for then we should have such violets as *ochroleuca* and *prionantha* associated with the pansies, and other combinations of a similarly unnatural character. But associating the form of the nectaries, with that of the leaf, with the colour, and with the geographical distribution, we obtain a very natural arrangement of the species. The odorous and hairy violets, presenting short lancet-shaped nectaries, cordate leaves, often being hairy, and frequently nearly orbicular, purple-blue flowers, no stem, and a centralization of the species in North America, form a *first* group. The same form of appendage, but usually more developed as to length, combined with a cordate or lanceolate leaf, smooth, or slightly hairy, a stem, purple-blue or cerulean flowers, and an almost equal distribution in the old and New Worlds, indicate a *second* equally natural, which may be represented by *V. canina*. *V. palustris* is the type of a *third*, and *V. biflora* of a *fourth*; the former associating a reniform leaf with a rotund appendage and a cerulean flower, and the latter a similar leaf with an abbreviated lancet-shaped appendage and a yellow flower. The linear nectary, combined with a yellow flower and cordate leaves, forms a *fifth*; parallel to which may be placed (*sixth*) such as have pinnate leaves, blue flowers and linear nectaries. Lastly, the pansies form a most natural group (*seventh*) of themselves, presenting us with flowers of all colours, linear nectaries, leaves peculiar to themselves, lyrate stipules, and a centralization in the mountainous countries of the western portion of the Old World.”—p. 81.

XI. *An Attempt to ascertain the true Hypericum quadrangulum of Linnæus.*

By CHARLES C. BABINGTON, M.A., Cantab., F.L.S., F.G.S., &c.

The author observes that the difficulty attending the determination of the *Hypericum quadrangulum* of Linnæus, has arisen from a belief

that Linnæus himself referred to different species by that name. In the Linnæan herbarium are two specimens, on "different papers pinned together, the first of which is the *H. quadrangulum* of Eng. Bot. (t. 370), and has a number appended referring to the Sp. Pl.; the other is the *H. dubium* of Leers (Eng. Bot. t. 296), and has the same number attached to it, and also the name of "*H. quadrangulum*." Linnæus first described his *H. quadrangulum* in the 'Hortus Cliffortianus,' (p. 380), where it is said to have "*Folia calycina subulata*," and Morison (vol. ii. t. 6, f. 10) is referred to as the original authority. Morison's plant is the *H. quadrangulum* of Smith, "which has the *folia calycina subulata*," while in the *H. dubium* of Leers and Smith they are "broad and very obtuse." Linnæus, in all his subsequently published works, refers to the 'Hortus Cliffortianus' as the authority for his *H. quadrangulum*; and as the plant so named in Smith's works and figured in 'English Botany' agrees with that described by Linnæus in having subulate calyx-leaves, there can be no doubt of its being the Linnæan *H. quadrangulum*.

Mr. Babington next shows that the plants named *H. dubium* by Leers and Smith, *H. quadrangulum* by Fries and Wahlenberg, *H. maculatum* by Crantz and Allioni, and *H. delphinense* by Villars;—"constitute two well-defined and truly distinct species," although the above names are generally considered synonymous. The paper concludes with the descriptions and synonymes of the three species, so far as the author has been able to determine the latter, "but in nearly all cases, excluding the synonymes cited by the respective authors."

1. *Hypericum quadrangulum*, Linn. Stem erect, 4-winged: leaves oval-oblong or elliptical, with pellucid dots: sepals erect, lanceolate, acute, entire; petals lanceolate. "*Linn. Hort. Cliff.* 380; *Leers, Herb.* 168; *Crantz, Aust.* 89; *Sm.! Fl. Brit.* 801; *Eng. Bot.* 370; *Gaud. Helv.* iv. 625; *Host, Aust.* ii. 78. *H. tetrapterum*, *Fries, Nov. Suec.* (ed. 1) 94, (ed. 2) 236; *Reich.! Excurs.* No. 5179; *Koch, Syn.* 134; *Fl. Siles.* iii. 83; *Kunth, Berol.* i. 70; *Bab.! Prim. Sarn.* 19; *Leight. Shrop.* 372. *H. quadrilatum*, *Wahl. Suec.* ii. 476. *Androsæmum Ascyron dictum*, caule quadrangulo glabro, *Morrison*, ii. 471, sect. 5. tab. 6. fig. 10."

"I have not ventured to refer to any of the other works of Linnæus, because he appears to have confounded the following species with this in all his later works."—p. 87.

2. *H. dubium*, Leers. Stem erect, obsoletely quadrangular: leaves elliptical, obtuse, with few pellucid dots: sepals reflexed, broadly elliptical, obtuse, very entire, with many black dots on the outside; petals elliptical, with many black dots beneath. "*Leers*, 169; *Sm.! Fl. Br.* 802; *Eng. Bot.* 296; *Gaud.* iv. 626; *Wallr. Sched. Crit.* 401; *Host*, ii. 79; *Bocuningham. Monaster.* 227. *H. quadrangulum*, *Fries*, 237; *Ber-*

gius, *Mat. Med.* (ed. 2) p. 679; *Koch*, 134; *Fl. Siles.* iii. 83; *Sven. Bot.* t. 359; *Wahl.* ii. 478; *Sadler, Fl. Pesth.* 351; *Kunth*, ii. 70."

3. *H. maculatum*, Crantz. Stem erect, quadrangular: leaves ovate-elliptical, obtuse, with few pellucid dots: sepals reflexed, ovate-lanceolate, toothed, obtuse, mucronate, with pellucid striæ; petals elliptical, obtuse, with purple striæ and dots beneath. "*Crantz, St. Aust.* (ante 1769), *ed. alt.* 98; *Allioni, Fl. Pedem.* (1785) ii. 45, t. 83, f. 1, (optime). *H. delphinense, Villars!* "*Fl. Delph.* (1785) 81;" *Hist. Plant. Dauph.* (1789) iii. 497, t. 44, (male); *Reich!* *Fl. Exsicc.* No. 1500. *H. quadrangulum, Leight!* *Shrop.* 370.

XII. Notes on the Distribution of British Ferns. By H. C. WATSON, F.L.S.

MR. WATSON commences his admirable remarks by observing that "excepting some spots of small extent, whence they are banished by local peculiarities of the surface, ferns may be said to range over the whole of Britain, from south to north, from east to west, and from the shores of the sea almost to the summits of the loftiest mountains; from which latter situation they are probably absent, rather in consequence of the bleak exposure to wind, than of the diminished temperature incidental to the height of any of our mountains."

The number of species of British ferns will be variously estimated, according to the views entertained by botanists regarding specific limits. "The lowest estimate may be taken at 34; which is raised to 36, by the inclusion of two species now supposed to be extinct, and, perhaps, never found wild in England, namely, *Asplenium fontanum* and *Trichomanes brevisetum*." The latter number will be raised to 40, by those botanists who regard as distinct species the following plants:—*Polypodium Dryopteris* and *calcareum*; *Aspidium lobatum* and *aculeatum*; *Asplenium Ruta-muraria* and *alternifolium*; and *Cistopteris fragilis* and *dentata*. "And the number of 40 would be still farther augmented by the addition of four other varieties, which are sometimes accepted for species, namely,—

- | | |
|---|--|
| " <i>Aspidium angulare</i> , a variety of <i>A. aculeatum</i> or <i>lobatum</i> . | |
| " <i>Aspidium dilatatum</i> , ... <i>A. spinulosum</i> . | |
| " <i>Aspidium dumetorum</i> , ... <i>A. dilatatum</i> or <i>spinulosum</i> . | |
| " <i>Cistopteris angustata</i> , ... <i>C. dentata</i> or <i>fragilis</i> ." | |

Then again a few botanists would raise to the rank of species *Aspidium recurvum* and *Asplenium irriguum*; while others would regard as varieties *Cistopteris alpina* and *Woodsia hyperborea*; "but since their views are not shared by many, we may hold our ferns to be estimated at 36, 40, or 44."

The number of species of indigenous flowering plants would in like

manner vary, according to the views of the party by whom the estimate might be made. "By rigidly excluding all species not fully recognised as indigenous, and also numerous varieties which are commonly now counted amongst species, the flowering plants of Britain will be found scarcely to exceed 1200; or, admitting doubtful species, but still excluding doubtful natives, they may be taken at 1400. To reach the number of 1636, given in the Catalogue printed by the Botanical Society of Edinburgh,* we must admit many species of foreign introduction, and a goodly list of varieties named and received as species." But in determining the proportion borne by the ferns to the flowering plants, "if we take a low estimate for one group, we must follow the same rule in the other, or their proportions will unavoidably appear wide of truth." The proportions of the two groups taken from the three estimates of the number of each given above, will be these.

" FERNS.	FLOWERS.	PROPORTIONS.
36	1200	1 to $33\frac{1}{3}$
40	1400	1 to 35
44	1636	1 to 37"

The author by way of comparison next gives a table showing the relative numbers of ferns and flowering plants in eight different Floras; the proportions (omitting fractions) being as under.

Iceland.....	1 to 25	Channel Isles	1 to 51	Sweden.....	1 to 40
Faroe.....	1 to 27	Belgium.....	1 to 67	Lapland.....	1 to 25
Ireland.....	1 to 30	Zealand.....	1 to 47		

"Ferns are thus seen to bear a larger proportion relatively to flowering plants, in the northern and mountainous parts of Western Europe, than is the case with this group of plants in low countries,—such as Belgium, Zealand, and the Channel Isles,—whose latitude nearly corresponds with that of England; whilst the proportions before set down for Britain place it in the scale betwixt Faroe and Iceland, on the one hand, and Belgium and the Channel Islands on the other; the former having a relative predominance of ferns, the latter having a similar predominance of flowering plants."—p. 91.

It is then shown by a comparison of twenty local Floras, that the distribution of ferns in Britain corresponds with their distribution in the north-west of Europe generally, since both the relative and absolute number of species diminish "as we pass from the hilly districts of

*The 1st edition of the Catalogue is here referred to; the number of species (1636) given in the "Enumeration of Plants" prefixed to the Catalogue appears to include the ferns as well as flowering plants. In the 2nd edition the number of species in the two groups is distinctly given as 1594 and 55, (including *Lycopodium*, *Isoetes*, *Pilularia* and *Equisetum*).

Scotland and the north and west of England, towards the low south-eastern countries lying nearest to Belgium." In Yorkshire, according to the table given, there are 36 ferns and 1002 flowering plants; or 1 to 28: the Faversham and East Kent Flora, on the contrary, furnishes only 13 ferns and 806 flowering plants, or 1 to 62: these being the extreme proportions afforded by the twenty Floras examined.—The Midland Flora has 23 ferns and 840 flowering plants, or 1 to 37.

Mr. Watson remarks that "York is pre-eminently the county of ferns;" for although the author of the Yorkshire Flora "has multiplied species more than many other writers on local Botany," the ferns are really most numerous in that county. This the author attributes to various causes, such as its central position, and the diversified character of the country; "the climate of its low vales being sufficiently mild for the growth of species which shun the northern counties of Scotland, without being too warm or dry for the growth of boreal species, to which the hilly districts of its western border are particularly suited, as well as to the production also of the more exclusively mountain species." Then again its coast furnishes *Asplenium marinum*, and its various soils and rocks are adapted for those species which are attached to particular formations.

In Cambridgeshire there are 14 ferns and 847 flowering plants, or the ferns are as 1 to 60. This paucity of ferns is also explained by a reference to the character of the county. A large portion consists of low fens, with but little wood and few hedge-rows; "much of the rest is composed of gentle undulations of chalk," of inconsiderable elevation, with few trees and little water.

"Moray ranks next to Yorkshire in the high proportion of its ferns," (1 to 30). This is accounted for by "the rigid exclusion of introduced species of flowering plants" by the author of the Moray Flora.—On the other hand the number of flowering plants in Northumberland and Durham is high (1030), in consequence of "the addition of many species brought to the coasts of those counties in ship ballast." In the absolute number of species (28) the ferns of these counties rank next to Yorkshire, although, from the cause above mentioned the proportion borne by them to flowering plants is much lower, (1 to 37).

It is evident from the variation in the number of ferns in the several districts, that some species must have a partial range; accordingly it appears that "no one of the district Floras includes all the native species, whilst about half of these Floras include fewer than half of the species." Some species are so widely diffused and so abundant in individuals, that they are probably to be found in every county; others

again are either confined to a few localities, or have a wide range over certain parts of the island although excluded from others.

A table is next given wherein are enumerated forty-three species, showing in how many of the twenty local Floras before mentioned, and in what number of twenty-four manuscript lists, the name of each species occurs. By this means may be gained a tolerably correct idea of the range of our native ferns; although, as the author observes, "without regard to the distinctness of the species, the dates of their first discovery, and the certainty of their nomenclature," erroneous conclusions might be drawn from the list.

Pteris aquilina, *Polypodium vulgare* and *Aspidium Filix-mas* are the only three species "so universally distributed as to be included in all the forty-four district Floras and lists." But although these are our three commonest ferns, yet to neither of them does the widest geographical range in Britain belong. "The most widely ranging of our native ferns, taking into view the three directions of latitude, longitude and elevation, are *Blechnum boreale* and *Aspidium dilatatum* (or *spinulosum*)."

"It has been already stated that ferns prevail chiefly in the hilly tracts towards the north and west, and that they are less numerous in the low south-eastern counties of England,—a peculiarity that is doubtless in great measure attributable to the more humid and cooler atmosphere of the former. The three circumstances on which this difference of climate depends, are those of latitude and longitude, conjointly with elevation of the surface; and the influence of these three conditions in producing the general result, will scarcely admit of divided consideration. We may, indeed, trace some agreement betwixt the range of certain species and the geographical divisions of latitude and longitude; yet this connexion (or, more strictly, this coincidence) is so much interfered with by the third condition, that of height, as to render separate investigation almost useless."—p. 97.

In proof of these positions it is remarked that about half the number of indigenous ferns are absent from the English counties lying to the east of Gloucestershire and Nottinghamshire; "whilst none of the species found growing in these south-eastern counties are wholly wanting in those to the westward of them; most of these species also being much more plentiful in the western counties." The paucity of ferns in the south-eastern counties is accounted for by the different character of the surface, owing to the absence of rocky ravines, waterfalls and mountain elevations, and the consequent dryness of atmosphere, rather than by the difference of longitude.

Nor is the northern or southern limit of a fern's range altogether to be determined by the degree of latitude, though they may be more

decidedly traced than the longitudinal boundaries; yet even in this case the author states the lines of cessation to be determined more by "the hilly and broken character of the surface" than by the degree of latitude; and instances the hills of Wales as bringing "several species into a more southern latitude than it is at all likely they would have been found in, if Wales and the adjacent English counties had been as little diversified with high hills as are the counties under the same latitude on the eastern side of the island."

"The effect of the mountains, however, is probably much more decidedly shown in prolonging the southern range than in arresting the northern range of ferns; since the low coast-line, as well as small plains and valleys around, or amongst the hills, may still afford suitable localities for such ferns as are unfitted to bear the climate of the mountain summits or acclivities, although capable of growing in the climate incidental to the latitude."—p. 98.

The author's classification of ferns according to their range in Britain, and his observations, are very interesting. Those are first given which "may be considered to have a range of latitude almost through the whole of Britain."—

<i>Cistopteris fragilis</i>	<i>Osmunda regalis</i>	<i>Aspidium dilatatum</i>
<i>Polypodium Phegopteris</i>	<i>Scolopendrium vulgare</i>	<i>Asplenium Filix-fœmina</i>
vulgare	<i>Hymenophyllum Wilsoni</i>	<i>Trichomanes</i>
<i>Pteris aquilina</i>	<i>Aspidium lobatum</i>	<i>Ruta-muraria</i>
<i>Blechnum boreale</i>	<i>Oreopteris</i>	<i>Adiantum-nigrum</i>
<i>Botrychium Lunaria</i>	<i>Filix-mas</i>	marinum
<i>Ophioglossum vulgatum</i>	spinulosum	

Four of the above twenty species "are very rare in the south of England, namely, *Botrychium Lunaria*, *Cistopteris fragilis*, *Hymenophyllum Wilsoni* and *Polypodium Phegopteris*, especially the last; and they are not found at all in the Channel Isles." *Asplenium marinum*, *Scolopendrium vulgare*, *Ophioglossum vulgatum* and *Osmunda regalis*, are decidedly rare in the north of Scotland, "and they are not found at all in the Faroe isles, though the *Ophioglossum* is stated to grow in Iceland."

The following are "boreal and mountain ferns, which are unknown southward of the Thames."—

<i>Woodsia hyperborea</i>	<i>Cistopteris dentata</i>	<i>Asplenium septentrionale</i>
ilvensis	<i>Polypodium Dryopteris</i>	<i>Aspidium Lonchitis</i>
<i>Cistopteris alpina</i>	<i>Asplenium viride</i>	<i>Cryptogramma crispa</i>

Four species are given as being chiefly "confined to the middle latitudes of Britain."—

Aspidium cristatum
rigidum

Asplenium alternifolium
Polypodium calcareum

Four species "affect the southern, or southern and midland counties, being absent from the northern counties."—

Adiantum Capillus-Veneris
Asplenium lanceolatum

Aspidium Thelypteris
Grammitis Ceterach

Of four others either the range is undetermined, or their specific distinctness is questionable.—

Hymenophyllum tunbridgense
Aspidium aculeatum

Aspidium angulare
dumetorum

"Two remaining species, if ever found in England, and not now extinct, are exceedingly local in the north of England."—

Asplenium fontanum

Trichomanes brevisetum

The author observes that more complete and accurate observations are yet required "with regard to the limits of ferns in ascending the mountains;" and refers to Francis's 'Analysis of British Ferns' as containing nearly all that has been published on the subject. Five are mentioned as certainly rising "almost to the summits of the highest hills in Scotland," being found at an elevation of between 3000 and 4000 feet; the two first probably above 4000 feet.

Cryptogramma crispa
Blechnum boreale
Polypodium Phegopteris

Aspidium (dilatatum?)
Lonchitis

The following occur "at a lower elevation, but still probably above 2000 feet, and some perhaps above 3000 feet."—

Botrychium Lunaria
Woodsia hyperborea
ilvensis

Asplenium viride
Cistopteris alpina
dentata

Cistopteris fragilis
Polypodium vulgare

"On quitting the mountain tracts, we leave the four following species behind us:"—

Woodsia hyperborea
ilvensis

Aspidium Lonchitis
Asplenium viride

Two others, being rare on the isolated lower hills, may be classed with the mountain ferns.—

Cryptogramma crispa

Asplenium septentrionale

Eight species, found chiefly in the hilly districts of the north and west, yet occasionally occur "so far from the mountain tracts, that they cannot be held in the character of exclusively mountain ferns."—

Cistopteris alpina
dentata
fragilis

Hymenophyllum Wilsoni
Polypodium Phegopteris
Dryopteris

Polypodium calcareum
Botrychium Lunaria

It is next remarked that "under the combined influence of latitude and longitude, thus modified by the effect of elevation of surface, the lower limits of many ferns, equally as those of flowering plants, appear on a map like irregular lines, whose general direction runs from south-west to north-east; whilst their upper limits encircle the hills, or the hilly tracts, like zones or belts." It must not, however, be supposed that by terminal lines are to be understood any others than "artificial lines, drawn on a map, so as to connect the extreme stations for any species in either direction." Also the terms *upper* and *lower* limits are to be understood as applying "to latitude, to elevation above the sea-level, and also in some measure to the degree of proximity to the mountain tracts." In the neighbourhood of the latter a great change in the character of the Flora of a district becomes evident, although the latitude and absolute elevation remain nearly the same. Thus the upper limit of British plants will include, unless otherwise qualified, the three conditions of more northern latitude, increased elevation and greater proximity to mountain tracts. Again, by the lower limits are to be understood "the opposite conditions of southern latitude, diminished elevation, and also comparative remoteness from the mountain tracts, as centres around which the species are distributed."

These explanations being kept in view, it will be seen to be impossible at present to represent on maps the distribution of British plants with anything like accuracy, "in consequence of the upper limits of most of the species being yet so little known." Their upper limits in latitude might be traced pretty accurately; and an approximation to their altitude above the sea-level might be arrived at; but the difficulty would be to determine their propinquity to the mountain centres. This can only be ascertained when botanists shall carefully record the places where plants of the plains are last seen by them, as they enter amongst the valleys of the mountain districts.

"As an example of such difficulties, let us take *Scolopendrium vulgare*, a fern widely diffused in Britain from Orkney to the Isle of Wight, and abundant in the south of England. Betwixt these extreme points, however, there are many wide spaces

from which this fern is wholly absent ; and one of these spaces perhaps includes nearly the whole of the Highlands. The *Scolopendrium* is reported to grow in the counties of Renfrew, Lanark, Edinburgh, Forfar, Nairn and Orkney, and thus seems partially to encircle the Highlands. But whether its extreme stations, or upper limits towards the mountain centres, are found in these counties, remains to be shown. Again, *Pteris aquilina* is exceedingly plentiful in Britain, from one extremity to the other, but it fails upon the higher hills of Wales, the north of England, and the Scottish Highlands ; and may even prove to be wholly absent from a transverse belt of high moors and hills crossing Scotland about the 57th parallel of latitude. But what botanist can trace on a map of Britain those portions of the surface from which this very conspicuous fern is quite absent ?"—p. 103.

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"In returning from this digression respecting maps to the immediate subject of the present paper, it may be farther observed, that ferns, as a class of plants, cannot be exclusively connected with any particular local situation or quality of soil. For the most part, a shady situation, damp ground and atmosphere, and a porous or peaty soil, are suitable to ferns ; whilst exposure to sun, wind, and salt spray, as well as very dry or marshy localities, are unsuitable. But some of the *Asplenium* grow in dry crevices of rocks and walls, as also do *Grammitis Ceterach*, *Polypodium Dryopteris*, and *Polypodium calcareum*, and even the less rigid ferns constituting the genus *Cistopteris*. On the contrary, *Osmunda regalis* might almost be designated a marsh fern ; and other species so far approximate to the same character, as to thrive in swampy ground, that is, in watery places, where the soil is loose and spongy ; for example, *Aspidium Thelypteris*. But ferns that grow well in swampy places will also grow well on rocks and banks where the soil is not particularly wet ; for instance, *Blechnum boreale* and *Asplenium Filix-femina*. None are aquatics. One only is a littoral species, *Asplenium marinum* ; and this one is occasionally seen in places many miles from the sea. *Osmunda regalis* so frequently occurs near the shore, within reach of the salt spray, and even at times within reach of high tides, that it might be regarded as a sub-littoral species. None perhaps require the sun's rays directly shining upon them ; but some few will bear daily exposure to the sun for several hours, though the greater number thrive best on a slender allowance of sunshine. It cannot yet be stated that any species are absolutely limited to soils of a particular chemical or geognostic character ; but *Grammitis Ceterach*, *Polypodium calcareum*, and the species of *Cistopteris*, certainly affect lime rocks, though, indeed, it is believed by some botanists, that the *Polypodium calcareum* is a variety of *P. Dryopteris*, varied in its habit through the influence of soil or exposure. If so, the only species that is limited to limestone, if even it be so limited, is *Grammitis Ceterach*. The harder kinds of trap and slate rocks seem favourable to *Asplenium septentrionale* and *Woodsia ilvensis*.—And, in general, the sand-stones are more productive of ferns than chalk or clays ; though the difference here is probably owing more to the mechanical than to the chemical qualities of the soils."—p. 105.

(To be continued).

ART. XC. — *Varieties.*

216. *Additions to the Rarer Plants observed at Nottingham, (Phytol. 78).* I send a list of some of the rarer plants which I gathered near Nottingham during a short stay last month.

- | | | | |
|---|--|--------------------------|--------------------------------------|
| Salvia Verbenaca. | Castle-rock | Cerastium arvense. | Nottingham forest, |
| Lemna polyrhiza. | Pools in Nottingham meadows | | and banks of the Trent above Wilford |
| —— gibba. | Near the rocks in the park | Spiræa Filipendula. | Meadows nr. Beeston |
| Crocus vernus, (in seed). | Nottingham meadows | Rubus Koehleri. | Mapperly plains, &c. |
| Sclerochloa distans. | Ditto | —— Idæus. | Colwick wood, &c. |
| —— rigida. | Colwick park-wall | Tilia parvifolia. | Mapperly hills |
| Potamogeton pectinatus and perfoliatus. | Canal near Lenton. | Nuphar lutea. | Pools in the meadows |
| Echium vulgare. | Castle-rock, &c. | Hesperis matronalis. | Rocks in Colwick park |
| Cynoglossum officinale. | Rocks in Colwick park | Astragalus glycyphyllos. | Ditto |
| Lysimachia Nummularia. | Nottingham meadows | Trifolium subterraneum. | Nottingham prk. |
| Hottonia palustris. | Ditto | —— striatum. | Ditto, and near Wilford ferry |
| Menyanthes trifoliata. | Oxton bog | Lactuca virosa. | Rocks in Colwick park |
| Rhamnus catharticus. | Near Wilford, Colwick Wood, &c. | Carex stellulata. | Oxton bog |
| Smyrnum Olusatrum. | Castle rock | —— remota and vulpina. | Near Beeston |
| Petroselinum sativum. | Rocks in Nottingham park | —— divulsa. | Near Oxton, and in Colwick park |
| Ulmus suberosa. | Near Beeston, &c. | —— muricata. | Nottingham park, &c. |
| Allium vineale. | Rocks at Snenton, castle-rock &c. | —— stricta. | Banks of the Trent, &c. |
| Vaccinium Oxycoccus. | Oxton bog. | —— Cederi & ampullacea. | Oxton bog |
| Daphne Laureola. | Colwick wood | —— vesicaria. | Banks of the Trent |
| Butomus umbellatus. | Frequent in the Trent vale | —— riparia. | Banks of the canal near Lenton, &c. |
| Stellaria glauca. | Nottingham meadows, and under the gypsum rock at Clifton | Quercus intermedia. | Colwick wood |
| Sedum anglicum. | Castle rock | Salix Helix. | Near Wilford, &c. |
| — Joseph Sidebotham ; 26, York St., Manchester, July 7, 1842. | | —— pentandra. | Near Oxton |
| | | —— Russelliana. | Nottingham meadows |
| | | —— alba. | Banks of the Trent, &c. |
| | | —— acuminata. | Oxton bog |
| | | —— aurita. | Nottingham forest, &c. |
| | | —— cinerea. | Near Wilford, &c. |
| | | —— oleifolia. | Colwick wood. |

217. *Note on Linaria spuria and L. Elatine.* Having lately gathered some very luxuriant plants of *Linaria spuria*, which grew in abundance with *L. Elatine*, I was induced to try if I could find any character whereby to distinguish them without taking into consideration the leaves and spur; and my specimens present the following apparently constant distinctions.

L. spuria. Peduncles closely downy: calyx-segments ovate, longer than the capsule.

L. Elatine. Peduncles glabrous: calyx-segments ovate, acuminate, with a diaphanous margin reaching half way up, calyx as long as the capsule. — *Wm. Mitten* ; 91, *Blackman St., Boro'*, August 17, 1842.

218. *New Locality for Halimus pedunculatus*.—I have much pleasure in sending you what is, I believe, an unrecorded station for the rare *Halimus pedunculatus*. I found it in August last, growing not very plentifully in the salt marsh about two miles below Gravesend.—*Id.*; September 17, 1842.

219. *Additional Manchester Plants*. Allow me to make the following additions to the list of Manchester plants, (Phytol. 279).

<i>Avena fatua</i>	with its fruit as figured in Leighton's
<i>Ballota ruderalis</i>	Flora, the other with its fruit agreeing
<i>Callitriche pedunculata</i> , β . <i>sessilis</i> , (Bab.)	ing with Leighton's figure of the
<i>Camelina sativa</i>	fruit of <i>C. paniculata</i> .
<i>Carex angustifolia</i> , (Sm.)	<i>Digitaria sanguinalis</i> . Heap bridge, near
— <i>ampullacea</i> , var. <i>longicarpa</i> , (mihi).	Bury
This plant is found at Hale Moss;	<i>Doronicum Pardalianches</i> . Near Little-
it differs from the common state of	borough
the plant, in its fruit being much	<i>Hieracium boreale</i>
longer in proportion to its breadth.	<i>Potamogeton oblongus</i>
— <i>teretiuscula</i> . Two varieties; one	<i>Reseda alba</i>

Of *Scleranthus* I have two very different forms from the neighbourhood of Manchester, neither of them will be *S. perennis*, but as I have no wish at present to speak on their specific identity, but merely to call the attention of botanists to the capsules of the plants belonging to this genus, perhaps some of us will be able to make out the number of seeds contained in each. Lightfoot says "Sem. 2, calyce inclusa, ('Flora Scotica,' 225); Withering says, "Seed single, egg-shaped, inclosed by the gristly tube of the cup," ('Systematic Arrangement of British Plants,' 5th edition, vol. i. p. 240); Smith says "Seeds 2, convex at one side, flat on the other," ('English Flora,' 282); Hooker says "Capsule one-seeded, covered by the calyx," ('British Flora,' 1st ed. 188).—*Samuel Gibson; Hebden Bridge, September 5, 1842.*

220. *Anagallis arvensis with White Flowers*. In the course of one of my rambles this month, I gathered a specimen of *Anagallis arvensis*, answering precisely to that described by Sir W. Hooker, viz., the "flowers pure white, with a small, well-defined, bright purplish-pink eye in the centre of every corolla," said to have been found by Mr. John Dillwyn, at Penllengare, S. Wales. I could find but one plant, but I shall examine the field carefully next year, and earlier in the season, as my specimen had only two flowers on it, the rest having formed capsules. I should imagine that the specimen gathered by Mr. Dillwyn is the only one upon record.—*Henry Lascelles Jenner; Chiselhurst, Kent, September 19, 1842.*

221. *Botanical chair at King's College*. We are pleased to see the name of Mr. E. Forbes advertized for the summer course on Botany.—*Ed.*

ART. XCI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

September 3, 1842.—John Reynolds, Esq., Treasurer, in the chair The following donations were announced:—British plants from the President, from Mr. B. D. Wardale, Mr. G. W. Francis, the Rev. T. Butler and Mr. T. Sansom. Mr. B. D. Wardale presented numerous specimens of *Lastræa cristata* (Presl), collected at Bawsey Bottom, near Lynn, Norfolk. Donations to the Library were announced from the American Academy of Sciences, Philadelphia, the Egyptian Society, Mr. G. W. Francis and Mr. S. P. Woodward.

Mr. Thomas Twining, jun., exhibited a large collection of cultivated specimens from Twickenham. A paper was read from Mr. R. S. Hill, being "An Enquiry into Vegetable Morphology."

Morphology is that division of Botany which takes cognizance of the various changes which occur in the condition of the vegetable organs, both such as are normal, as the transmutation of leaves into the several floral organs, as well as such as are abnormal, and occur only accidentally.

Taking the above as the definition of the subject, we immediately see its divisibility into two heads; the first of which treats of regular metamorphoses, which are connected with the natural structure of all vegetables: while the second includes those irregular or accidental metamorphoses, which result from an imperfect or redundant performance of the several changes noticed under the first head. These last influence particular plants, or parts of plants, and occur only in occasional instances. To this division belongs the consideration of double and other monstrous flowers.

Of regular Metamorphosis.—The great principle of regular Morphology is, that the various floral organs are but modifications of one common type, which is the leaf.

Lindley endeavours to give to Linnæus the credit of having been the author, or at least of having suggested the idea of this great fundamental principle; and in proof of this opinion quotes passages from his 'Systema Naturæ' and 'Prolepsis Plantarum,' in which the theory is imperfectly hinted at. At his suggestion the subject does not seem to have been taken up; nor was it at all until Goëthe published in 1770 his work 'On Vegetable Metamorphosis.' With a knowledge of the character of his poetical writings, it hardly need excite surprise that botanists of the day should have been sceptical on a subject so new, and at first sight so opposed to the dictates of common sense; and that his work at the time should have been considered to partake of the fanciful character of his poetry; or that they should regard it more as a poetical dream than as a sober philosophical truth, in connexion with a natural science.

Leaves are in many instances entirely wanting, or exist only in the degenerated forms of scales and spines. In these cases there is hardly any part of a plant which is not capable of being modified and rendered capable of performing the functions of leaves. For this purpose we find the excessive development of the stem which obtains throughout lactaceous plants; also the stem is furnished with leafy wings or expansions which run down its sides, as is seen in *Acacia alata*, &c. The petiole, in the form of the phyllodium, frequently takes upon itself the office of the leaf, as in most of the Acacias from New Holland. The same functions are frequently discharged by the peduncle, as in *Ruscus*, *Asparagus*, &c.; and this appears to be the true character of the leafy organs of Ferns, the true leaves of which exist in the degenerated form of scales known by the name of ramenta.

The evidence of the identity of bractæ with leaves is more apparent than that of many of the other organs, for in very many plants they differ but little, except in size, from the original type, and indeed in almost every instance, even among those which are highly coloured, as in many of the genus *Salvia*, we find presented a gradual transition from the form and colour of the leaf to an almost petaloid condition; *Salvia splendens* and *Sclarea* are both good examples of this. The position of these organs on the axis shows clearly their close analogy to leaves, for they usually follow more or less the normal position of the leaves of the species, whether alternate or opposite. The calyx consists of a series of leaves arranged in a whorled manner round the axis, either

distinct, or more or less combined, according to the character of the plant under consideration. Examples of partial reversion of calyx to the character of the leaf are seen in specimens of *Trifolium repens*, the *Polyanthus* of the gardens, and in cultivated roses.

In monstrous specimens we sometimes meet with the petals becoming leafy, of the occurrence of which in *Anemone nemorosa* M. DeCandolle has represented a remarkable example; and the author had seen the same condition occurring in the petals of *Papaver Argemone*.

Stamens appear to be formed from petals by the gradual narrowing of their lower part, so as to form the filament, while the anthers develop themselves on the upper margins. *Nympeæa alba* affords a beautiful example of the gradual transition of all the floral organs; and in it this transmutation of petals into stamens is clearly seen, the petals at first become narrower, then one of the margins has an abortive anther developed on it, to this another is afterwards added on the opposite margin, and finally the contraction of the petal having completely taken place, a perfect stamen is developed.

The petaloid cup which is found in the genus *Narcissus* is formed from an additional row of three stamens, as is evident from the frequent division of this organ into three pieces, which alternate with the divisions of the corolla.

The only instance with which the author was acquainted, wherein the carpellary leaf is to be found in an extended or unfolded state, naturally occurs in the order Coniferæ, where it simply covers but does not enclose the ovules. The carpellary leaf in this condition manifestly approaches a bractea.

The conversion of the pistil into a leaf is likewise frequently seen in *Trifolium repens*; and the author has a specimen of a species of *Potentilla*, which exhibits this change in a remarkable degree.

It was announced that the paper would be continued at the next meeting.

Mr. Adam White laid before the Society a selection of the plants he had lately found in a walk from Whiting Bay, Isle of Arran, to Brodick, and from Brodick to the top of Goatfell. He alluded to the strangely contrasted climates of Arran, arising partly from its insular position and its alpine mountains; he exhibited a few lichens, mosses, and phænogamic plants peculiar to alpine districts, and at the same time from the garden of Mr. Paterson of Whitehouse, Lamlash, laid before the meeting dried specimens of two species of *Leptospermum* from New Holland, one of them believed to be new, as well as of three or four other New Holland plants, the names of which were as yet unascertained. He particularly referred to the fine plants of warmer regions reared by Mr. Paterson in the open air, some of which stand the winter without shelter; as instances he referred to two species of *Salvia*, *Pentstemon*, &c., and exhibited luxuriant sprigs of Fuschias, one of which was taken from a tree-like shrub, 18 feet high, and 22 feet wide, which, in its native soil, could scarcely have been more luxuriant. The damp atmosphere, he remarked, so different to their own dry climate, prevented some of the New Holland plants from flowering, but, he added, their luxuriant foliage and strong shoots nearly compensated for this. He alluded to the lists of the rarer plants found in the island, and communicated by the Rev. David Landsborough to Dr. M'Naughton, for insertion in his account of Kilbride (one of the island parishes) published in the 'New Statistical Account of Scotland,' and mentioned that he had been lately informed that Professor Gardner of Glasgow, in company with the minister of Stevenston, had found *Funaria Muhlenbergii*, a rather scarce moss, in tolerable plenty.—G.E.D.

THE PHYTOLOGIST.

No. XVIII.

NOVEMBER, MDCCCXLII.

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ART. XCII. — *Description of Equisetum hyemale, Mackaii and variegatum, as found on the banks and in the bed of the River Dee; with additional observations.* By J. B. BRICHAN.

Equisetum hyemale.

Root creeping, jointed, branched. Stems several from one branch of the root, or branched at the base, one to three feet high, or upwards, stout, erect or decumbent, articulated and fluted, occasionally throwing out catkins or very small branches near the top. Ridges or furrows fourteen to twenty-one in number, in luxuriant specimens twenty-eight; ridges grooved, and, as well as the furrows, grained like a file. Sheaths widest at top, at first pale green, with a black crenate rim; afterwards entirely black; ultimately white, with a broad black band at the base, the rim remaining black as before. The uppermost sheaths of the root *generally*, and the upper and lower of the *younger* stems *occasionally*, bear black, membranous, flexuose, deciduous teeth or bristles. The sheath of the catkin is invariably and persistently toothed. Catkins terminal, more rarely lateral, and in that case either single or in opposite pairs.

Equisetum Mackaii.

Root creeping, jointed, branched. Stems several from one branch of the root, or branched at the base, slender, often filiform, erect or decumbent, one to two and a half feet high, consisting of articulations from one to two and a half inches in length. The older stems frequently throw out long slender branches, which generally bear catkins. The stems are fluted, the ridges grooved, and both ridges and furrows grained as in *E. hyemale*. Number of ridges or furrows eight to twelve. Sheaths cylindrical, at first pale or yellowish green, with a narrow black band immediately under the teeth; ultimately wholly black, with the lower border of the black entire. Teeth equal in number to the ridges, membranaceous, white at the edge, long and tapering, terminating in a flexuose bristle which is generally black,

but sometimes white, in which case the white margin of the teeth is broader: they often adhere in pairs, and are decidedly persistent. — Catkins terminal, either on the stems or on the branches.

Equisetum variegatum.

Root creeping, jointed, branched. Stems many, three to twenty inches long, branched at the base and upwards, generally but not invariably decumbent and filiform, rather brittle, consisting of numerous fluted articulations, half an inch to an inch and a half long. Ridges or furrows five to nine, the former grooved, and both grained as in *E. hyemale* and *E. Mackaii*. Sheaths slightly swollen upwards, the upper half black. Lower border of the black waved or toothed, the dentations alternating with the teeth, and, like them, equal in number to the ridges. The teeth are distinct, never adhering, obtuse, somewhat ovate, black in the centre, with a broad, white, membranous margin, and tipped with a short bristle, which is either black or white, and more or less deciduous, while the teeth themselves are persistent. Catkins terminal, rather large in proportion to the size of the plant.

These descriptions are intended to apply to the plants only “as found on the banks and in the bed of the river Dee,” and as seen either with the naked eye or through a small lens. I have endeavoured to exclude everything that could not with propriety be admitted as a specific distinction. The characters which I have given, and which I find to be constant, together with the various circumstances noticed in what follows, have led me to the conclusion that the three plants are well entitled to be ranked as distinct species. I conceive that the main strength of my position lies in the fact, that amidst all the varieties of size and shape which each plant presents, the distinctive characters remain the same. The species never *shade off* into one another, the smallest specimen of the largest species being readily distinguished from any specimen of the other two; while, on the other hand, the stoutest stems of *E. Mackaii* and *variegatum* can at once be recognized as distinct from each other, and from the slenderer stems of *E. hyemale*. The following additional remarks apply chiefly to the situation, stems, sheaths, catkins and branching.

Situation. — The three plants are found at various parts along the course of the Dee, within the parish of Banchory, extending over a space of six or seven miles in length. There are three distinct stations for *E. hyemale*, four for *E. Mackaii*, three for *E. variegatum*,

and several intermediate spots in which detached plants of each species or variety, especially of *E. Mackaii*, occur. I have no doubt whatever that both above and below the part where these stations are, there exist other localities hitherto unrecorded. In no instance have I seen *E. hyemale* associated with either of the other two, although *E. Mackaii* grows in its immediate vicinity. In two of the localities *E. Mackaii* and *variegatum* grow together, sometimes in juxta-position so close that they seem to spring from the same root. The three grow both upon the banks of the river and in the water, *E. hyemale* being generally highest and driest, whilst *E. variegatum* shows most of a tendency to *take the water*. The former seems to attain its largest growth among loose dry earth, especially where it finds shelter among large stones and trees or bushes, and insinuates its long straggling roots between and under the stones. *E. Mackaii* appears to prefer a locality where water, oozing from the bank, forms a green moist spot, or finds its way through a rent made by the river, or a channel worn by itself. The water where *E. Mackaii* thus fixes its habitat, is generally, *if not invariably*, chalybeate, being accompanied by that orange-coloured mineral or vegetable substance, and exhibiting on its surface that bluish-grey silvery scum, both of which are said to indicate the presence of iron. On the brink and in the cavities of such a spot the plant luxuriates freely, and assumes all its different forms,—short, tall and branched. *E. variegatum* is found in similar situations, generally running farther into the river, and the roots of both plants are frequently stained with the orange-coloured matter just mentioned. *E. variegatum* manifests a disposition to run its roots under large stones and grow beneath their shelter, where, and in the water, it is most luxuriant. From the stations assigned to it I am inclined to think that its natural habitat is “on the banks and in the bed” of rivers; and that, when found among sand, it has been carried down by the stream at whose mouth it grows: its greater growth in water seems to favour this conclusion. I think that when *E. hyemale* and *E. Mackaii* grow entirely in water, they are much smaller than in their peculiar situations already described.*

* Since writing the above I have seen another station for *Equisetum Mackaii*, and one for *E. hyemale*, both farther down the river. In these both plants grow more sparingly, — *E. hyemale* upon a hard, dry, grassy bank, decumbent, almost prostrate, and much more slender than usual; *E. Mackaii* in the immediate neighbourhood of mineral water, but growing partly, as it does in some of the other stations, among loose stones in the river's bed, and also nearly prostrate.

Stems. — The longest stem of *E. hyemale* I could find measured three feet two inches: it consisted of eighteen articulations. Several other stems measured nearly three feet in length. The longest articulation on any stem examined was about three and a half inches; occasionally a very short internode occurs among the rest, and there are sometimes two or three such in succession.

The thickest stem I observed was, in various respects, peculiar. It was composed of eleven principal articulations, the seventh of which, broken by accident, was bent at about a right angle to the lower part of the stem. The eleventh articulation was about one inch in length, and in it was inserted a sort of double stem, or rather a couple of stems, one of which, about one fourth the diameter of the original, consisted of four short articulations, having about twenty striæ, all that remained of the other being the decayed basal sheath. The broken internode and sheath were wet with an orange-coloured liquid, which, when touched, stained the hand. The cause seemed to be, that rain had lodged in the sheath and spread itself over part of the internode. Both, when dry, were partly quite black and partly of an orange colour. Does this indicate the presence of iron in the plant? I have already mentioned the fact, that I generally find *E. Mackaii* and *E. variegatum* in the vicinity of water impregnated with that mineral.

Another stem, growing in the river, had but five articulations, the upper part having decayed. At the top of the fifth articulation there were two opposite branches, the one upwards of thirteen inches long, the other rather shorter, each having twelve articulations, besides the black radical sheath. The sheaths of the main stem had fallen off, and a few setiform *black* teeth were present on the upper and lower sheaths of the two branches.

The *standard* or *normal* number of striæ both on this plant and on the other two, appears not to depend either on the length or thickness of the stem. The greatest number I have found on one of the most luxuriant stems, but not the stoutest, is twenty-eight; the smallest number, but not on the smallest stem, fourteen. On some of the most slender stems I have counted twenty-one, which I consider the *standard* number. The striæ diminish in *breadth*, but not generally in *number*, as they approach the top of the stem, nor is the greatest number always found on the thickest internode. Taking an average stem of each plant, *E. hyemale* appears to have the narrowest ridges; *E. Mackaii* the widest ridges and narrowest furrows; *E. variegatum*, ridges and furrows of nearly equal width, and, if there is any differ-

ence, rather broader than those of *E. hyemale*. From this cause stems of *E. Mackaii* and *variegatum* can at once be distinguished, at least in their recent state, by holding them between the eye and a light; *E. Mackaii* appears almost quite opaque, the furrows being scarcely seen, while *E. variegatum* and *E. hyemale* under the same circumstances appear semitransparent.

No stem of *E. Mackaii* that I have seen deserves a particular description. The longest I measured was two feet five and a half inches in length, the next longest two feet four inches. The number of articulations is about the same as in *E. hyemale*, the terminal one, when in fruit, being usually much longer than in the latter plant. The standard number of striæ I take to be eleven.

Of *E. variegatum* I have found no stem longer than about twenty inches, exclusive of the smallest portion of the root; the usual length is from three to ten. On one of the longest stems I have counted upwards of thirty articulations, the shortest has no fewer than eight; the terminal articulation, when bearing a catkin, is longer in proportion to the size of the plant than that of *E. hyemale*. It is likewise as stout as any on the same stem, often the stoutest of all. The standard number of striæ is eight.

The structure of the cuticle is undoubtedly the same in each species or variety; the largest plant having the narrowest striæ. In all, the furrows are more minutely grained than the ridges. It appears to me, however, that the structure of the cuticle in all the *Equiseta* is more or less the same, though the siliceous tubercles may not be disposed with the same regularity.

Sheaths.—These in *E. hyemale* have only two thirds of their length coloured differently from the internodes; in *E. Mackaii* two thirds or one half; in *E. variegatum* never above one half: the lower third or half being concolorous. In this I think they differ from some of the other *Equiseta*, whose sheaths are wholly coloured in a different manner from the stems. The colour changes according to the growth of the plant, as above described.

After a good deal of searching, and examination of many specimens, I have not found the semblance of teeth upon the sheaths of *E. hyemale*, except on one or two of the younger stems and branches, and generally on the upper and lower sheaths. When present they are wholly black, subulate, and flexuose; they are extremely fugacious, and, from their rare occurrence, appear to me to be quite accidental. The sheath which embraces the catkin has always rather large, coarse, black, flexuose, persistent teeth, unlike the delicate membranaceous

teeth of *E. Mackaii* and *variegatum* The sheaths, having first split longitudinally along the furrows, fall off before the plant has decayed.

The sheaths of *E. Mackaii* invariably bear teeth such as are described above. They remain longer on the plant than those of *E. hyemale*, and the teeth and bristles seldom, if ever, fall off before them.

In *E. variegatum* the bristle alone is usually deciduous. The teeth remain till the sheaths decay, which they do in the same manner as in *E. Mackaii*. In both the teeth of the uppermost sheath differ from the rest, only in being larger and in having shorter bristles.

The sheaths of all three turn more or less white before their final decay. When they begin to split or fall off, the part of the internodes which they have covered is of a pale green colour, like that of the sheath in its first stage. Soon after it begins to turn black and swell, and thus the plants in *extreme old age* become bent and geniculated. This, however, is quite different from the sinuous appearance which the stem sometimes assumes when in perfect vigour.

Catkins. — These, like the other parts of the plant, are well described by Mr. Newman. While the catkins of *E. hyemale*, in one of the stations on the Dee, expand freely and shed their seed or pollen, I have not in any case observed those of *E. Mackaii* or *variegatum* to expand at all. They appear to ripen without expanding or rising fully out of the sheath.

On the top of many stems of *E. hyemale* I observed a pile of small, dark brown, membranous, elastic, conical, inverted sheaths, of the same substance as the teeth of the sheath which embraces the catkin, increasing in width upwards, and so closely embracing each other that the rim only of each is seen, except the highest and largest, which gives the top of the pile a conical shape. Although scarcely an inch in length, it resembles an *inverted abortion* of the plant. Its lower end is at first inserted in the uppermost sheath, and surrounded by several small sheaths of a texture similar to its own, and placed within each other. It is afterwards quite protruded, and gradually falls off, leaving a flexuose apex, somewhat like that of the catkin, whose formation I am persuaded it precedes. On dissecting the top of several stems from which the pile of cones seemed but recently to have fallen, I found the germ of the catkin completely enclosed within its sheath, the teeth of which, not yet separate, form by their union the apex which appears when the pile falls off. Dissection, however, when the cones are present, seems often to discover an *abortive* germ. The number of inverted sheaths in one of these piles is about twelve; what

their peculiar function may be I cannot even conjecture: I do not find anything analogous either on *E. Mackaii* or on *E. variegatum*.*

Branching.—On what the branching depends I am unable to say. It is sometimes not easy to distinguish between branches and stems; the only distinction I can suggest seems almost a truism. Stems arise from the root, and branches from the stem. As the root is always black, they can therefore be in general distinguished, if this method of distinction is attended to. And I think it will generally be found that *E. variegatum* is the only plant of the three that can strictly be said to branch from the base, inasmuch as it does so in all circumstances, while the other two can scarcely be said to throw out basal branches, except when the stem has been broken off, or has decayed almost at the root. The three are occasionally branched near the top of the stem. With respect especially to *E. hyemale* and *Mackaii*, it may be said that this appears, in every instance, an effort of the plant to prolong its existence. It is always in older or broken stems that such branching takes place. *E. hyemale* is least subject to this manner of growth, and when branched, rarely throws out more than a single branch. I have not observed one above two or three inches long, except in the solitary instance of the stem before described. Sometimes, instead of a branch, a single catkin, and more rarely a pair of opposite catkins, appears.

E. Mackaii is, for the most part, unbranched, but of the three it is most liable to branching from the upper part of the stem. In this case the most frequent number of branches is three, and these, spring-

* Subsequent observation has enabled me to ascertain the following facts. The sheaths which in *E. hyemale* surround the base of the pile of cones, are the *rudiments* of several of the upper articulations of the stem. The base of the pile embraces the rim of the innermost sheath, and within these the catkin and its sheath are, in their germinal state, completely enclosed. It is only when these incipient internodes prove abortive, that they appear of a *texture similar* to that of the crowning deciduous pile. *They are entirely destitute of teeth.*

The apex of the stem of *E. Mackaii*, previously to the appearance of the catkin, proves, when dissected, to be composed of the converging teeth of a sheath which encloses several others disposed in a similar way, and having long, black, subulate teeth, like its own. As in *E. hyemale*, the germ of the catkin is found within, thus protected in its embryo state. The manner of growth in *E. variegatum* is exactly the same, but the teeth in every stage are somewhat white at the edge.

What length of time stems thus gradually developed require to attain their full growth, I cannot say. This, and many other particulars respecting these plants, might form very interesting subjects of observation to those by whom they are cultivated, or to those who have leisure to study them in their natural state.

ing from different parts one above another, are either horizontal, or vertical, or variously inclined. Sometimes there is but one branch, sometimes there are four, of which two are occasionally opposite. They generally, but not always, bear catkins, and that more abundantly than those of the other two varieties. The general length of the branches is from three to seven inches ; sometimes it is a foot or upwards.

E. variegatum, as already observed, *naturally* branches from the base, and, it may be added, from *all* parts of the stem. Its branches vary in length from one to fifteen inches. I know not whether the following description be worth notice, but it may perhaps illustrate the mode of growth frequently adopted by the plant, and the difficulty of distinguishing between stems and branches. On part of an ascending root five inches long, growing at the side of a large stone almost in the water, I found eight distinct ramifications. The four lowest were simple and perfect, the other four broken, or decayed, and branched. The lowest of the latter had three undivided branches ; the next, which rose from a branch of the root, had seven branches, two of which had each a branchlet : the next had one divided branch, and the highest had three branches, one of which was divided. Besides all these it threw out another root, which bore the remainder of a branched stem. A piece of the stem which formed a continuation of the primary root remained in a decayed state, and also appeared to have been branched. None of the ramifications exceeded a few inches in length.

Mr. Newman has kindly furnished me with specimens of the Dublin Canal plant, which he considers a variety distinct from that which grows in the Dee. To me they appear identical ; that from Dublin being not more luxuriant than many specimens I have gathered here.

Some of the remarks now made may appear unimportant, and even puerile ; but in so far as they contain facts, they must possess at least *some* value, and perhaps there is not too much presumption in the hope that they be the means of leading others to institute similar investigations. To myself the particulars above so minutely detailed are valuable on two accounts ; first, because they have served to convince me more of the distinctness of the plants in question as species ; and secondly, because I am of opinion that the advance of botanical science, as well as of all other sciences, depends more upon the particular inquiries made by individuals than upon the general knowledge acquired without much investigation by the generality. I may be allowed to add, that although I have come to a different conclusion from Mr. Newman's, with regard to the plants I have attempted to describe,

and have been most kindly encouraged by that gentleman to study the matter, and to publish the result of my inquiries, I feel all the deference due to authority so high, and therefore much diffidence in declaring myself to be of an opposite opinion.

J. B. BRICHAN.

Manse of Banchory,
October 4, 1842.

ART. XCIII.—*Additions to the List of Plants met with in the neighbourhood of Swansea*, (Phytol. 104, &c.). By T. B. FLOWER and EDWIN LEES, Esqrs. *Communicated by J. W. G. GUTCH, Esq.*

38, Foley Place, March 31, 1842.

SIR,

Through the kindness of my friends Mr. Edwin Lees, of Malvern, and Mr. T. B. Flower, I am enabled to send you the following addenda to my Swansea Flora, of plants which had escaped my notice.

I am, Sir, truly yours,

J. W. G. GUTCH.

To the Editor of 'The Phytologist.'

- Ranunculus aquatilis*, var. β . *pantothrix*. Frequent in watery places about Swansea.
 ————— *arvensis*. In Cornfields about Newton, and also near Caswell Bay.
 ————— *auricomus*. Frequent in the woods.
 ————— *circinatus*. Cromlyn Burrows and about Neath.
 ————— *Ficaria*. Frequent about the neighbourhood, with *R. reptans*.
Delphinium Consolida. I have in my herbarium two specimens of this plant gathered on the sandy shore of the bay, where it then appeared truly wild,—June, 1828; (E. Lees).
Papaver Argemone. In the cornfields, frequent.
Chelidonium majus. On old walls about Neath and Britton Ferry.
Fumaria officinalis. Common in cultivated ground and about hedges.
Cardamine pratensis. Frequent.
Draba verna. On old walls in the neighbourhood of Swansea.
Sisymbrium Sophia. On the shore on the other side of the Ferry. This is very scarce in Worcestershire; (E. Lees). Waste ground about the Infirmary, and in many other places.
 ————— *officinale*. Common about hedge-banks.
Viola canina. In the woods.
 ————— *odorata*, var. β . *imberbis*. Hedge-banks, frequent.
Polygala vulgaris, var. β . *oxyptera*. On the Downs near Pennard Castle, and frequent in other places.

- Hypericum hirsutum*. In thickets and hedges in the neighbourhood.
- Dianthus Armeria*. Banks about Britton Ferry, but not frequent.
- Spergula nodosa*. Frequent on the sand hills between Swansea and the Mumbles.
- Sagina maritima*. About Salt-house Point.
- *apetala*. On walls and waste places, very common.
- Mæhringia trinervis*. In shady bushy places, common.
- Stellaria aquatica*. Frequent in watery places.
- Tilia microphylla*. You have a habitat for this I see; but it also grows in a wood between Gower Inn and Penrice, (E. Lees).
- Geranium lucidum*. On old walls about Newton, and other places in the neighbourhood, with *G. rotundifolium*.
- *pyrenaicum*. Between Swansea Ferry and the race-course.
- Chrysosplenium oppositifolium*. In watery shady places.
- Adoxa moschatellina*. Frequent under shady hedges.
- Saxifraga tridactylites*. On walls and dry barren ground.
- Euonymus europæus*. In the hedges; also frequent about Neath.
- Ononis antiquorum*. In neglected pastures about the neighbourhood.
- Melilotus officinalis*. In the hedges and borders of fields.
- *vulgaris*. Ballast-heaps near the west pier.
- Trifolium arvense*. Swansea and Sketty Burrows.
- Medicago lupulina*. In pastures and cultivated fields.
- *minima*. I gathered this on the descent of a steep rock, close to the sea, eastward of the perforated rock in Oxwich Bay, 1839. It must be looked for on hands and knees, being nearly buried in sand and soil, but deserves the trouble required to attain it, from the curious structure of its legumes, (E. Lees).
- Ervum tetraspermum*. In the hedges and cornfields.
- *hirsutum*. In cornfields and other cultivated ground in the neighbourhood.
- Hippocrepis comosa*. On dry chalky banks.
- Sanguisorba officinalis*. In moist meadows at the base of Craig-y-llyn-Vawr, vale of Neath, (E. Lees). Common in boggy meadows at Witch-tree bridge; and also at Neath.
- Poterium Sanguisorba*. On the hills, abundantly.
- Geum rivale*. At Cil Hepste, vale of Neath, (E. Lees).
- Rosa villosa* and *tomentosa*. I rather wonder you have not recorded these, nor Mr. Dillwyn either. They are eminently conspicuous and beautiful with their deep red flowers, in the vale of Neath, in June and July, especially about the Mellte waterfall, and at Pont Henrhyd. *Rosa arvensis* is very common about Swansea, (E. Lees).
- Rosa systyla*. This is rare; you have it *without* any assigned locality. I gathered it in Gower by the side of the road between Pennard and Penrice, (E. Lees).
- Cœnothra biennis*. Naturalized in many places about Swansea and Britton Ferry.
- Torilis infesta*. In fields and by waysides with *T. nodosa*.
- Pastinaca sativa*. About the borders of fields.
- Heracleum Sphondylium*. In the hedges and meadows, common.
- Æthusa Cynapium*. In cultivated ground; much too common a weed.
- Sium angustifolium*. In ditches and rivulets.
- Sison Amomum*. Frequent under hedges in the neighbourhood.

- Anthriscus sylvestris*. In the hedges, very common.
- Scandix Pecten-Veneris*. In waste fields, common.
- Galium palustre*, var. β . *Witheringii*. In moist meadows and ditches.
- *uliginosum*. In watery places.
- Sherardia arvensis*. In fields on a light soil.
- Sambucus nigra*. In the hedges and woods.
- Hedera Helix*. In woods and on old buildings.
- Campanula Trachelium*. In Gower, by the side of the road between Penrice and Port Eynon; numerous specimens, (E. Lees). In hedges and thickets.
- *glomerata*. By the sides of the hills in dry open pastures.
- Valeriana officinalis*. In woods and marshy places.
- *dioica*. In moist boggy meadows.
- Solidago Virgaurea*. In the woods, frequent.
- Senecio tenuifolius*. In woods and hedges and by road-sides.
- Centaurea nigra*, var. β . *radiata*. In pastures and by road-sides.
- Sonchus arvensis*. In corn-fields and hedges, frequent.
- *asper*. Frequent, with *S. oleraceus*.
- Lactuca muralis*. On old walls, also frequent about the Mumbles Castle.
- Helminthia echinoides*. About hedges and the borders of fields.
- Pieris hieracioides*. On dry banks, frequent.
- Symphytum officinale*, with var. β . *patens*. Frequent in watery places.
- Myosotis collina*. Frequent on dry walls.
- *palustris*. Common in watery places.
- *repens*. Cromlyn Bogs and marshy places, frequent.
- Verbascum nigrum*. About the banks of Britton Ferry.
- Solanum Dulcamara*. In the hedges, frequent.
- Statice Limonium*. Very beautiful and luxuriant in crevices of the rocks stretching from the shore into the sea at Port Eynon, (E. Lees).
- Lysimachia Nummularia*. In wet meadows, and by the sides of rivulets.
- Utricularia vulgaris*. In a pool at Oystermouth, (E. Lees). Marshy places on Cromlyn Burrows, and also in the Neath Canal.
- Veronica Beccabunga*. In ditches and rivulets.
- *scutellata*. In boggy meadows near Neath.
- *officinalis*. Woods and pastures, frequent.
- *montana*. Between the Lamb and Flag and Pont Nedd Vechan, vale of Neath, (E. Lees).
- *hederifolia*. In cultivated and waste ground.
- Linaria spuria*. In the cornfields.
- *Elatine*. In the corn and cultivated places.
- *minor*. In sandy meadows.
- Orobanche barbata*. On ivy, on the walls of Oystermouth Castle, and at Britton Ferry.
- Teucrium Scorodonia*. In woods and bushy places.
- Mentha rotundifolia*. Very abundant about the banks of Britton Ferry.
- *arvensis*, var. β . *acutifolia*. About the banks of Neath Canal, and also about Britton Ferry.
- Rumex obtusifolius*. In waste ground.
- *conglomeratus* and *crispus*. Frequent.
- *sanguineus*. Common by roadsides.

Polygonum Hydropiper. Frequent in watery places.

——— *mite*. About Neath and Fabian's Bay.

——— *aviculare*. Common in waste ground.

Parietaria officinalis. On old walls in the neighbourhood.

Euphorbia Peplus. In cultivated ground.

——— *amygdaloides*. In the woods.

Acorus Calamus. "Britton Ferry; Mr. Player."

Eriophorum pubescens. In great profusion and beauty on a bog called Gors Lwm, on the Banwen, Glyn Neath, (E. Lees).

Cladium Mariscus. In one spot only (as far as I saw), growing up in the hedge by the side of the Cromlyn Canal, in a marshy spot, (E. Lees).

The following additions and corrections have been supplied by MR. GUTCH.

ADDITIONS.

Polystichum angulare. Hedge going from Swansea to Cromlyn Bog.

Riccia glauca. Field on the hill above Cromlyn Bog.

Jungermannia furcata, multifida, dilatata, inflata, bicuspidata, crenulata and *polyanthos*.
Cromlyn Bog.

Calicium sphærocephalum. Sketty.

Opegrapha saxatilis, Verrucaria rupestris, Endocarpon Hedwigii. Rocks on the hills near the Mumbles.

Endocarpon smaragdulum. Stone walls on hills above Cromlyn Bog.

Psora cæruleo-nigricans, Squamaria crassa. Rocks on hills near the Mumbles.

Tetraspora lubrica, Entomia rotata. Water in an old quarry on hill above Cromlyn bog.

Rivularia angulosa. Cromlyn Bog.

Mougeotia genuflexa, Tyndaridea pectinata.

Zygnema nitidum and *geminum*. Penllergare.

Cymbella ventricosa. Cromlyn Burrows.

Anabaina Jacobi. Cromlyn Bog.

CORRECTIONS.

Phytol. 105, line 18, for "gaur" read "Gam."

Senebiera didyma (Id. 106) Mr. Dillwyn informs me abounds in rubbish heaps in and about the town of Swansea.

Lepidium Draba (Id.) has been found by Mr. Moggridge; and it grows plentifully by the river side a little higher up than where gathered by Mr. Dillwyn in 1802.

Linum catharticum, (Id. 107). Mr. Dillwyn's name should have been attached to this plant, and not to *L. usitatissimum*.

Drosera anglica (Id.) has been found by me on the Town Hill in the boggy ground.

——— *rotundifolia* and *longifolia*. In Cromlyn Bog and Cwn Buchan.

Lavatera arborea, (Id. 117). At Paviland Cave; omitting Loughor Marshes.

Orobis sylvaticus, (Id. p. 108, line 6 from bottom), for "Fir Point" read "Fir Pont Cadley," meaning "the lands by Cadley Bridge," being the name of the tenement on which it grows.

Vicia lathyroides (Id.) Mr. Dillwyn doubts having been found.

J. W. G. GUTCH.

ART. XCIV. — *Notes on Gentiana Amarella*, (Linn.), and *Gentiana germanica*, (Willd.) By GEORGE LUXFORD, A.L.S. &c.

THESE remarks are published in the hope that others, who have had an opportunity of examining the plants to which they refer, may be induced to record the results of their investigations in 'The Phytologist.' Mr. Babington's opinion (Phytol. 310) and Mr. Brown's observations (Id. 320) have already appeared in its pages; on the other side of the question I may give the following extract from the 'Gardeners' Chronicle.'—

"*New British Plant.*—Some years ago Mr. W. Pamplin, bookseller, of Queen-street, Soho, observed a Gentian with large flowers in the neighbourhood of Tring, in Hertfordshire. Following his indication, the Rev. W. H. Coleman of Hertford has obtained specimens which have confirmed him in his suspicion that it would be found distinct from *G. Amarella*. In fact it proves to be the *Gentiana germanica* of foreign authors. He observes the following differences between it and *G. Amarella*:—"The plant is much smaller and less branched, while the flowers are fewer and larger. The leaves are broader—minutely but more distinctly dentate, as are also the segments of the corolla. The calyx is more rounded at the base, and its tube is equal to the segments; while *G. Amarella* has the segments rather longer than the tube. The segments of the corolla of such specimens of the *Gentiana* as he has examined, in æstivation overlap those adjacent to them on the right—while those of *G. Amarella* overlap towards the left. More important differences than these consist in the ovary of *Gentiana germanica* being stalked and the corolla widest at the throat, while in *G. Amarella* the ovary is sessile, and the corolla almost cylindrical. Dr. Grisebach has already referred the figures of *G. Amarella* in 'English Botany' and the 'Flora Londinensis,' to *G. germanica*; and there can, we think, be no doubt that it and *G. Amarella* are quite distinct species."—*Gardeners' Chronicle*, Oct. 9, 1841.

The perusal of this paragraph made me determine, whenever an opportunity occurred, to investigate the subject for myself, and, if possible, to satisfy my own mind as to the justness of the claims of the plant called *Gentiana germanica* to be considered specifically distinct from the *Gentiana Amarella* of Linnæus. At that time I had seen no authentic specimens of the former plant; my examination was therefore confined to the specimens of *G. Amarella* in my own herbarium. The results of this examination certainly did not tend to remove certain doubts which previously existed, at the same time, I was not so influenced by them but that my mind remained open to conviction should the evidence subsequently adduced tend in the opposite direction.

A few weeks since Mr. Wm. Pamplin very kindly sent me a recent specimen of a gentian, gathered by him near Streatley, Berks, together with the following remarks:—

"I have the pleasure to enclose herewith a fresh specimen of that large-flowered variety, or whatever it be, which I first gathered near Tring, in Herts, and which some have since considered, I believe, *Gentiana germanica* of Reichenbach and others.

"I add one or two plants of the common state of *Gentiana Amarella*, for your comparison."

At last, then, I had in my possession a veritable example of the wished-for plant, as well as additional materials for comparison, and I at once resolved to go to work. The first step to be taken in the enquiry was obviously that of consulting Willdenow, the original authority for *Gentiana germanica*. The characters assigned by him to the two plants, omitting the synonymes, are the following:—

38. *Gentiana germanica*, W. Corolla 5-cleft, salver-shaped, bearded, segments of the limb ovate, acute: leaves ovate-lanceolate: branches longer than the internodes. —'Species Plantarum,' Berolini, 1797. P. 1346.

39. *Gentiana Amarella*. Corolla 5-cleft, salver-shaped, bearded, segments of the limb lanceolate, acute: leaves lanceolate: branches shorter than the internodes.

Differing from the preceding in its whole habit, shorter branches, narrower and smaller corolla, lanceolate leaves and pale yellow root (*radice flava*).—Id. 1347.

Here, it will be observed, nothing is said about the stipitate ovary of *G. germanica*, or the sessile one of *G. Amarella*. Willdenow's distinctive characters are founded chiefly on differences in the shape of the segments of the corolla, in the form of the leaves, and in the relative length of the branches and internodes. He also, in the remarks above quoted after *G. Amarella*, applies to its root the same term (*flava*) as Froelich, in the following description of his *G. Amarella*, applies to *its* root. Froelich's *G. Amarella* is quoted by Willdenow as a synonyme of *G. germanica*.

Froelich's description of the plant being very full, I shall give it entire, omitting only his synonymes.

33. *Gentiana Amarella*. Corolla 5-cleft, salver-shaped, acute, throat bearded; segments of the calyx sub-equal.

Hab. in the meadows of Europe. Annual. Flowers in the autumn.

Root simple, fibrous, pale yellow, (*flava*). Stem erect, obsoletely hexagonal, purplish, leafy, branched in a brachiate manner; branches opposite, single-flowered, leafy, frequently many-flowered, of the same height as the plant; frequently more simple, few-flowered, not longer than the corolla. Radical leaves numerous, lying on the ground, obovate, obtuse, narrowing into a petiole, obscurely 3-nerved, withering; stem-leaves sessile, slightly connate at the base, ovate or ovate-lanceolate, more or less acute, rough at the margin, 3-nerved; upper stem-leaves and those on the branches sub-cordate, acute. Flowers terminal and axillary, solitary or two together, erect, an inch long (shorter in small plants), peduncles erect, angular, shorter than the flower. Calyx campanulate, marked with fifteen raised lines, 5-cleft beyond the middle, about

half the length of the corolla, segments lanceolate, acute, subequal. Corolla salver-shaped, purple-blue; tube widening upwards, angular, striated, transversely wrinkled between the striæ, contracted and paler at the base; limb 5-cleft, segments ovate-lanceolate, acute, entire, one-third the length of the tube: scales in the mouth of the tube five, membranaceous, white, multifid in a capillary manner at the apex. Stamina:—filaments rather longer than the tube, at the base of which they are inserted; anthers oblong, free. Pistil:—germen oblong, on a short stalk (*breviter pedicellatum*), attenuated upwards: stigmas ovate. Capsule oblong, longer than the corolla, stalked. Seeds roundish, rather compressed, smooth, brown.—Froelich, 'De Gentiana Libellus,' Erlangæ, 1796. P. 86.

Then follow the characters and an equally full description of *G. pratensis*, a native of Russia and Siberia, given by Willdenow as a distinct species, but quoted by Grisebach as synonymous with his *G. Amarella*, α . The following are its characters.

34. *Gentiana pratensis*. Corolla somewhat 5-cleft, salver-shaped, obtuse, throat bearded; segments of the calyx unequal: leaves lanceolate.

At the end of his work, Froelich gives the following interesting account of his meeting with another *Gentiana Amarella*, apparently distinct from the plant so called by himself and other German botanists.

"After the preceding part was printed, the 1st fasciculus of Dickson's Dried Plants came into my hands; among them is *Gentiana Amarella*, No. 5, from Derbyshire, in England. The root is like that of *Gent. Amarella* above described, but yellow, (*lutea*). Stem as in that, also purple, but more slender; ten inches high. Branches beginning at the middle of the stem, shorter than the adjoining internodes, as in *Gent. pratensis* and *campestris*; the stem therefore is not pyramidal, as it generally is in our *Amarella*. Lower leaves spatulato-ovate, the next ovate-lanceolate, the upper ones lanceolate, acute, shorter than the internodes. Flowers terminal and axillary, solitary or in pairs, the lower ones seated on the branches, erect, 9 lines long, 2 lines wide, being thus much smaller than in *Amarella* as above described. Calyx as in that, and about half the length of the tube of the corolla, rather unequal. Corolla likewise similar, only narrower, and apparently of a paler blue. Stamina the length of the tube. Germen still more attenuated above. This seems to be a species distinct from our *Amarella*, and if, as appears from the title of the fasciculus, it is named on the authority of the Linnæan herbarium, it must retain the name of *Amarella*; whilst our plant, the *Amarella* of German botanists, must receive another name.—Id. 141.

Willdenow, in the following year, published the German *Gentiana Amarella* in his 'Species Plantarum,' under the name of *G. germanica*.

Turning now from Froelich and Willdenow to Grisebach, "the latest and best authority on the Gentianæ," I must confess that I at first found myself somewhat bewildered among his characters of the "four states of each species," and the numerous synonymes assigned to each of these states. I think I cannot better illustrate the uncertainty and

difficulty attending this investigation, than by giving the characters of these plants and their varieties, with other essential particulars, as I find them in Grisebach's elaborate 'Genera et Species Gentianearum.' I had intended to give the whole of the synonymes, but finding that by so doing I should considerably lengthen my paper, I determined on quoting merely the references to original authorities and the very few British works.

I may here remark that I have endeavoured to render all these translations as literal as possible, without any attempt at elegance of diction.

Section IV. — *Amarella*, *Gaud.* Calyx entire, forming a tube. Corolla destitute of the intermediate fold and glands, salver-shaped, internally furnished with a fringed crown, (one species excepted). Stigmata two, distinct. Anthers free. Capsule generally sessile. Testa wingless. Root annual. Style none.

† *Stem erect, branched, branches many-flowered.*

43. *Gentiana Amarella*, L. Stem slender: radical leaves oval-spathulate, upper ones ovate-lanceolate, sessile: lobes of the calyx lanceolate, subequal, shorter than the tube of the corolla: crowned corolla half an inch long, tube cylindrical: linear-oblong ovary and capsule sessile!—From a living plant.

G. *Amarella*, *Lin. Sp. Pl.* i. 334; * also of the Swedish botanical writers, of the Linnæan herbarium (according to Dickson), and of Smith's specimens collected near Upsal with Linnæus by Ehrhart. Dried specimens, *Dicks. Dried Pl.* 5.

β. *uliginosa*, W.! Stem short, subsimple, few-flowered: leaves lanceolate: lobes of the calyx rather unequal, about as long as the tube of the corolla: corolla slender, generally 4-cleft, 4 lines long. This appears confined to the north of Germany. Height, 1 to 4 inches.

γ. *axillaris*, Schm. Stem a foot or less in height, straight: upper leaves very acuminate: cymes axillary, densely flowered, subsessile. Transitions to var. δ. are frequently met with.

δ. *pyramidalis*, W. herb. Stem straight, much branched, the branches forming a pyramid: cymes axillary, the lower ones on long peduncles, spreading.

Description.—*a.* Stem slender, rather straight, 6 to 18 inches high, with upright branches, or somewhat simple. Leaves an inch long, shorter than the internodes, their margins appearing serrulated under a lens. Cyme raceme-like, sometimes few-flowered, occasionally compound and forming a slender thyrus. Lobes of the calyx obtuse, as long as the tube, scarcely half so long as the tube of the corolla. Corolla blue; its tube obconical; the lobes elliptic-lanceolate, about half the length of the tube. Stamina about as long as the tube.

* The learned author observes, in a foot-note, that "The synonymes of the older writers had better be devoted to eternal oblivion."

Varieties.—A variable species as to the form of the leaves, the length of the calyx and the shape of its lobes; also in the number of parts in the flowers, which are either quaternary or quinary; in its mode of branching, and in the inflorescence, which varies from paniced to 1-flowered and sub-axillary; also in the colour of the corolla, which varies to white. The stem occasionally sends off from its base single-flowered partially decumbent shoots, (Scotland). It is also sometimes somewhat naked, and nodding at the apex, with leaves scarcely half an inch long, rather obtuse and narrow, with few-flowered axillary cymes, rigidly spreading, (stony places in the region of Baikal).—There are scarcely any limits between the other varieties; β . however is more constant.

Observations.—The following remarks will give some idea of the history of this species, the synonymy of which Reichenbach was the first to clear up satisfactorily. *Gentiana Amarella* is much more frequent in Sweden than *G. germanica*, if indeed the latter occur there at all, which I very much doubt, since Linnæus was either altogether unacquainted with it, or else did not distinguish it from the former, which is met with everywhere in that country. Ehrhart also collected *G. Amarella* with Linnæus; and on his return to Hanover, when he first saw *G. germanica*, he named it *G. critica*. This name, according to the rule of priority, would have been substituted for Willdenow's, had not Ehrhart's specimens presented a more rare and smaller form, but still having the stipitate ovary. Ehrhart's specimens are identical! with Smith's figure in 'English Botany,' 236, which, by mistake, is given as the *G. Amarella* of the Linnæan herbarium, and unnaturally represented with a sessile ovary; * it is, however, *G. germanica*. Dickson, more accurate in this respect, proved the *G. pratensis* of Froelich to stand in the Linnæan herbarium as *G. Amarella*; and Smith himself, having subsequently become sensible of his error, in his letter to Panzer written in 1822 (*Flora*, 1830, p. 529), says that *G. germanica* is distinct from the *G. Amarella* of Linnæus.† Sir W.

* Grisebach appears to be in error here. A very evident though short stalk is represented at the base of the separate ovary in the 'English Botany' figure.

† Sir J. E. Smith, in the second volume of his 'English Flora,' published in 1828, six years after the date of the letter above mentioned, has the following observations under *Gentiana Amarella*. "*G. germanica*, Willd. v. 1. 1346, which is *G. critica* of Ehrhart, Herb. 152, and, according to Swiss specimens, Haller's n. 651 (though the latter indicates many wrong synonyms, and takes it for an English plant), differs from *Amarella* in having *flowers* nearly twice as large, situated about the upper part of the *stem*, which is of a corymbose form of growth. It may be a good species, but has not yet been observed in England."—p. 31.

Hooker, however, did not consider the two plants to be distinct species; and has consequently again figured *G. germanica* under the name of *G. Amarella*; and in thus combining them other botanists agree, but I do not, since I have never seen intermediate forms, nor do I think that the arguments to be drawn from the different geographical stations of the two species, ought to be neglected.

Country. — Damp pastures in the plains of north-western Europe, (50° — 69°), of eastern Europe (even to the Caucasus) and Siberia. Hab. α . and β . in Scotland; γ . in England; δ . in the Highlands of Scotland; all on the authority of Hooker! Many foreign localities are given. Flowering in August and September.

Thus far Grisebach upon the distinctive characters of *Gentiana Amarella*. I cannot help suspecting that two at least of the five species which succeed it should be included among the varieties.

49. *Gentiana germanica*, W! Stem straight, robust: lower leaves spatulate, upper ones ovate-lanceolate, acuminate, sessile: lobes of the calyx subequal, ovate-lanceolate, shorter than the tube of the corolla: crowned corolla 5-cleft, tube gradually widening: linear-oblong ovary and capsule stalked.—From a living plant.

G. germanica, Willd. ! *Sp. Pl.* i. 1346. Figure; *Hook. Fl. Lond.* 33.

β . *minor*, G. W. F. Meyer, (Chl. Hanov. p. 278). Stem short, subsimple: leaves subequal: corolla very large.—From a living plant. Figure; *Eng. Bot.* 236.

γ . *præcox*. Middle stem-leaves oval, lower ones obtuso-spatulate: calyx as long as the tube of the corolla. — From a living plant. A form which, according to specimens collected in the Alps, near Heiligenblut, flowers in August, has the leaves acuminate, as in α ., but the calyx is like that of the present variety; it is in this respect, as well as the time of flowering, a transition to the common form.

δ . *caucasica*. Stem branched: all the leaves obtuse: lobes of the calyx subulate, distant, twice the length of the tube, and as long as the tube of the corolla. — From a dried specimen. In the Carpathians it passes to α . Figure; *Sims, Bot. Mag.* 1038.

Description. — α . Stem generally a foot high, variable in ramification. Leaves two inches long, equalling the internodes, their margin appearing serrulated under a lens, point rather obtuse. Cyme truly compound, forming a panicle nearly a foot long; erect indeed, but more spreading than in *G. Amarella*. Lobes of the calyx acuminate, equal, as long as its tube, half the length of the tube of the corolla. — Corolla blackish-blue, varying to violet; tube obconical! lobes ovate, acute, mucronate.

Varieties. — A very variable species. Besides the forms given in the synonymes, the following are worthy of being mentioned. Under α . Lobes of the calyx abbreviated, rather unequal. Corolla 2 inches

long, lobes elongated, elliptic-lanceolate, as long as the tube ! (perhaps a monstrosity). Branches elongate, fastigiate, (approaching γ). Under β . Leaves short, obtuse, lobes of calyx abbreviated, (approaching γ). Stem slender, 1-flowered, leaves very short, sub-rotund ! — Under δ . Lower leaves rosulate, spatulate, subrotund, (transition to γ). Calyx cleft on either side. Corolla 4-cleft.

Country. — Dry gravelly meadows and pastures, mountains and alpine situations at a height of from 150 to 6200 feet, in central Europe and the Caucasus. Hab. α . in England, according to a specimen collected near Ripon, (Hook.!) Flowers from August to October.

Under the name of *Gentiana campestri-germanica*, Grisebach also describes a plant which he considers to be a hybrid between *G. germanica* and *G. campestris*. The flower is 5-cleft, the calyx having two of its lobes much larger than the rest.

It will, I think, be considered quite unnecessary for me to give quotations from the works of any other continental botanists than those already referred to, who are all intimately connected with the subject under discussion ; — Willdenow from being the original authority for *G. germanica*, Froelich from the full descriptions contained in his *Libellus* of the species of *Gentiana* known at the time it was written, and Grisebach, from his elaborate *Monograph* of the whole order, in which work he has devoted considerable space to the illustration of the plants now before us. I am, however, truly gratified in being able to close this part of the enquiry with a short extract from the *fifth* edition of Hooker's 'British Flora,' published only within the last fortnight. The two plants stand therein as distinct species ; the characters assigned to each being substantially the same as Grisebach's, already given, I need not quote them : the following remarks, under *G. germanica*, will, however, show that although the opinions of the learned author, in deference perhaps to the high authority of Grisebach, may have been somewhat modified since the publication of the 'Flora Londinensis,' he evidently considers the question as still open to discussion.

"In the 'Flora Londinensis' I stated it as my opinion that the *G. Amarella* and *G. germanica* were not specifically different. Grisebach, Koch, and others think differently ; and as the former author has examined and made his remarks on the specimens in my herbarium, I have given his characters, and would direct the attention of botanists to the subject. Mr. H. Watson is of opinion that they are but trifling varieties of each other. In all my numerous specimens of *G. Amarella*, the plant takes a more or less pyramidal form, and the flowers are far more numerous, crowded, and considerably smaller than in *G. germanica*."—Hook. Br. Fl. i. 219. Ed. 5, Oct. 1842.

Since the preceding part was written I have again examined and compared all the specimens of *Gentiana* at my command, that can be referred to either of the two forms. This examination has led to the following conclusions.

1. That no character can be derived from either the positive or relative size of either plants or flowers; both forms being exceedingly and equally variable in this respect. The specimen from near Streatley is much larger, more branched, and with many more flowers than the specimens of *G. Amarella* which accompanied it; the reverse of these conditions obtained in the plants mentioned in the extract from the 'Gardeners' Chronicle' (Phytol. 381).

2. That no dependence can be placed on the relative proportions of the leaves, branches, and internodes; these proportions frequently varying even in the same individual. In the Streatley specimen some of the branches are shorter, others are longer, than the internodes of the stem, while the leaves are shorter. The same remarks will equally apply to large-flowered continental plants, and to British specimens of *G. Amarella*.

3. That in form both the leaves and calyx-lobes are variable; and the proportion borne by the latter to the tube of the calyx differs in the same specimen.

4. That although the tube of the corolla may, in some specimens, be correctly described as cylindrical, and in others as gradually widening upwards, yet intermediate forms are extremely common. And Grisebach, in his descriptions, calls them both "obconical," as Mr. Brown has already remarked, (Phytol. 320).

5. That with respect to the stalk (*stipes*) of the ovary, if by that term is to be understood a stalk separate and distinct from the substance of the ovary supported by it, similar to that represented in tab. 236, 'English Botany,' then such a stalk I have not been able to find either in the Berkshire plant before mentioned, in continental specimens, or in any others that can possibly be referred to *G. germanica*.

6. That if, on the contrary, by the term *stipes* we are to understand such a gradual diminution of size in the base of the ovary itself, as would probably be produced by the shrinking of that part, as suggested by Mr. Brown, then such a stalk I find to be more or less evident in every specimen that I have examined, whether referrible to *G. Amarella* or *G. germanica*.

7. Moreover, in undoubted specimens of *G. Amarella*, gathered rather late in the season, I find some flowers with mature capsules, which contain ripe seeds, and are generally perfectly *sessile*; while in

other flowers on the same plant, sometimes even in those on the same branch, the ovary being immature when the plant was gathered, it is *stalked*, apparently in consequence of the shrinking of the lower part in the manner described.

Lastly : as a necessary consequence of the above conclusions, and in the absence of more positive evidence than any we at present possess, I think I shall be warranted in considering the numerous forms of the two plants as all belonging to one variable species.

I shall be gratified by receiving specimens of any form of these plants for further examination ; and earnestly hope that the subject will be taken up by more able botanists, who will favour the public with the result of their enquiries.

GEO. LUXFORD.

65, Ratcliff Highway, October 25, 1842.

ART. XCV. — *Some Account of the Botanical Collections recently made by Dr. Theodore Kotschy (for the Wurtemberg Botanical Union) in Nubia and Cordofan.** Communicated by MR. WILLIAM PAMPLIN, jun.

THE collection of dried Nubian plants (amounting to nearly four hundred species) made by Dr. Theodore Kotschy in 1839, possesses so much interest, not only to the members of the Wurtemberg Union among whom the plants are distributed, but also to the botanical world at large, that Dr. Schnizlein, in the hope of rendering an acceptable service to botanical Geography, has kindly undertaken the task of enumerating and comparing them with the materials already known as forming part of the Floras of Egypt, Arabia, Eastern India and Western Africa. So favourable an opportunity of acquiring a knowledge of the vegetation of the eastern part of Africa, will not probably soon occur again.

In the first place, with respect to the condition of the plants, it is quite evident, on inspection, that they have been prepared with great care ; of some there are specimens both in flower and fruit ; all are exceedingly well preserved ; and of many species the specimens are numerous. We find twenty species in the most excellent state ; two hundred and fifty-six in perfectly good condition ; and only about forty which are not quite complete, or, in other words, less perfect : in fact, altogether, they could not have been expected to arrive in a

* Translated and abridged from the 'Regensberg Flora oder Botanische Zeitung' for 1842.

better state, for they are neither broken nor otherwise injured, and frequently several specimens of one species are given, and reckoned only as one : it must, however, be acknowledged, that on the whole a majority of small-sized plants occur, and a few of the larger ones, such as shrubs and trees, are cut into small pieces and occasionally divested of the root, probably with the view of economizing the space required in packing them.

Among the greatest ornaments of the collection, the following may be particularized. The two splendidly dried *Utricularias*—*U. inflexa* and *U. stellaris*, the new and delicate *Udora cordofana*. The superb grasses *Fimbristylis hispidula*, *Isolepis prælongata*, *Cyperus aristatus*, *squarrosus*, *resinosus*, *Lappago orientalis*, seven species of *Aristida*, *Ctenium elegans*, the ornamental *Triachyrum cordofanum*, *Chloris spathacea*, *Pennisetum lanuginosum*, *Panicum Petiverii*. *Isnardia lythrarioides*, *Heliotropium pallens* ; the magnificent *Ipomœa repens*, a bog plant, with large rose-coloured flowers ; the small but extraordinary *Conomitra linearis*, with its orbicular and long-pointed pod ; the conspicuous *Mollugo bellidifolia* ; but above all, that rare and remarkable plant the *Neptunia stolonifera*, whose root-stem reminds one of our *Phellandria*, the heads of flowers of *Œnanthe*, while the leaves and the fruit resemble those of a *Mimosa* ; *Poivreia aculeata*, *Guiera senegalensis*, six *Cassias*, four *Bergias*, the three splendid *Nymphæas*—*cærulea*, *Lotus* and *ampla* ; *Striga orchidea*, *Acanthodium hirtum*, *Pedaliium Caillaudii*, *Melhunia Kotschyi*, *Monsonia senegalensis*, *Daleschampia cordofana*, four *Pavonias*, five *Hibiscus*, eight *Sidas* ; the fine *Acacias*—*papyracea* and *seriocephala* : altogether we have thirty-nine species of *Papilionaceæ*, among which the *Requienia obovata* and the two species of *Alysicarpus* are worth noticing ; the remarkably well named *Euphorbias*—*acalyphoides*, *covolvuloides* and *polycnemoides*.

In the second place, the principal districts and localities in which Dr. Th. Kotschy made his collections are to be noted. They are as follow :—first in the province of CORDOFAN, the city Obied, with the neighbouring mountain Arasch Cool, the lake Tara, and the river Choor ; then the villages Abu-Gerad, Bara Chursi, Hogeli, Tejara and Uagle ; then the more southerly situated town Tekele, and the mountain Kohn : second, in the province SENNAAR, the village Wolet Medine, Gujeschab on the Nile, then the islands by the cataracts of the White Nile, at the mountain Gerri.

W. PAMPLIN, JUN.

(To be continued).

ART. XCVI.—*Analytical Notice of the ‘Transactions of the Botanical Society.’* Vol. i. pt. ii. Edinburgh: Maclachlan, Stewart & Co.; H. Baillière, London. 1841.

(Continued from p. 364).

XIII. *Remarks on the Structure and Morphology of Marchantia.* By GEORGE DICKIE, *Lecturer on Botany at Aberdeen.*

THE author's observations refer chiefly to *Marchantia polymorpha*; and they are arranged under two heads: “1. The structure of *Marchantia*. 2. The inferences to be drawn from the facts exposed under the first head.” The paper is illustrated by figures.

In the first division of his subject Mr. Dickie describes the structure of the frond, and the fructification. In speaking of the lower surface of the frond he states that what is called by Sir W. J. Hooker a “prominent blackish midrib,” “is in reality a groove in the frond, from the edges of which originate purplish scales, which, by meeting, conceal the groove; in this groove are numerous transparent filaments.” Many short radicles originate from the surface of the frond at the sides of the groove.

The receptacles of both the (so-called) male and female reproductive organs, are supported by peduncles; these originate “from the grooves on the lower surface of the frond, and are grooved in a similar manner, the peduncles and their posterior grooves being continuous with the frond and the groove on its inferior surface. In each of the grooves is lodged a bundle of transparent tubular filaments, the walls of which “are covered with green granules, often arranged in a spiral manner.” The lower end of the filaments is blunt and closed, the upper extremity spreads over the inferior surface of the receptacle, sending off a bundle to each lobe or ray of the former. The filaments at this part “are covered with overlapping scales, similar to those of the lower surface of the frond.”

What are generally considered to be male receptacles are lobed at the margin, while the female receptacles are rayed; the rays, however, are stated to be “merely lobes bent upon themselves, from above downwards.” A perpendicular section of the male receptacle shows it to consist of cellular tissue enclosed between two membranes. In the tissue “are embedded numerous flask-shaped sacs, with long necks, terminating each by an orifice on the upper surface of the receptacle. * * The sacs contain the bodies called *anthers*,

which vary in form according to the stage of development at which they are examined. Each of these bodies consists of a cellular sac filled with a granular matter." For a correct description of the fertile receptacles, with their involucre and capsules, the author refers to Sir W. J. Hooker's account of those parts.

Under the head of *Morphology*, the author institutes an enquiry into the true nature of the peduncles, and of the so-called male receptacles and anthers; and shows that the latter bodies bear no relation to those organs in flowering plants. He is of opinion that the lobed receptacles and the peduncles "may be considered as metamorphosed fronds," of which a longitudinal section shows them to be continuations; "the grooves of the peduncles are continuations of the grooves on the lower surface of the fronds, and they enclose the same spirally dotted filaments."

"The flat receptacle is lobed like the fronds, its structure is the same, on the lower surface, filaments in grooves covered with scales, and a cuticle with stomata on the upper surface; and the fact that one of the notches is larger than any of the others, and the concavity on one side of the peduncle, appear to lead to the inference, that this receptacle is a small frond folded horizontally upon itself. In *M. conica* the relation of the two is more evident, the receptacle in this species being sessile, and still more so in that variety of *M. hemisphærica* where the receptacles are always sessile, and embedded, as it were in the substance of the frond."—p. 110.

With respect to the bodies termed anthers, the author institutes a comparison between them as found in *Marchantia* and *Riccia*, a nearly allied genus. In the latter genus the capsules are spherical, in *Marchantia* the sacs "are flask-shaped, and have a long neck protruding by an orifice at the surface." The inclosed bodies also differ somewhat in shape, but in both genera they consist of "a cellular membrane enclosing minute granules." Hence the author is disposed to consider these bodies as gemmæ, or one means by which young plants are produced, but remarks that "it may appear rash to arrive at any such conclusion until they are actually seen to germinate under favourable circumstances."

XIV. *Remarks on some curious Metamorphoses of the Pistil of Salix caprea.* By the Rev. J. E. LEEFE, M.A., *Audley End, Essex.*

THE author commences his remarks by quoting Professor Lindley's observation, that the pistil is seldom found "converted into stamens, but it often takes upon itself the form of petals, and although cases are very rare of pistils bearing pollen, yet several instances are known of ovules being borne by the stamens." This rare instance of conver-

sion occurred in the catkins of an apparently healthy plant of *Salix caprea*, growing on the banks of the Cam, near Audley End, Essex.

"The catkins were of a light green colour, longer, and tapering to a point, instead of being blunt, as is usual in *S. caprea*. In one case three apparently proceeded from the same bud. The nectary and scale were very little altered, and the change is very various in its character, and several intermediate forms occur in addition to those which I am about to mention. Those enumerated are, however, the most remarkable. I may here mention, that I do not mean that all the forms are to be found in the same catkin, and also that the greatest alteration is observable in the flowers at the apex and base of the catkins.

"1. Styles two, each bearing at the top two small pale stigmas; in other respects as usual.

"2. Scale and nectary as usual. Stalk of the ovarium extremely lengthened, resembling a filament, downy, especially towards the base, terminating in an ovarium. Style cloven, the cleft penetrating the substance of the ovarium; at the base of the cloven style, on *one face* only, appeared two yellow bodies like the lobes of an anther.

"3. Stalk greatly lengthened. Ovary silky, not much altered at the base; stigmas almost entirely obliterated; instead of them a vertical depression or sinus, on each side of which was a yellow antheriform body, erumpent from the substance of the ovary. These contained *perfect pollen*, and in the lower ovary-like portion I remarked several ovules.

"4. Stalk forked or branched near the top, each fork bearing a silky body resembling an ovary.

"5. Stalk forked; one fork filament-like, and tipped with an anther yielding pollen; the other silky, approaching an ovary in form, and containing ovules.

"6. In this form, in which the nearest approach to a stamen was made, each fork bearing an anther containing pollen, and the ovary being entirely obliterated, traces of the original structure are to be seen in the bifurcated filament analogous to the two stigmas."—p. 113.

All these various forms are illustrated by figures.

XV. *Descriptions of Jungermannia ulicina (Taylor), and of J. Lyoni (Taylor).* By THOMAS TAYLOR, M.D., M.R.I.A., *Dunkerron, Kenmare, Kerry.*

1. *Jungermannia ulicina*, (Taylor). Stem creeping, filiform, branched: leaves distichous, roundish-ovate, concave, bilobate, inferior lacinia much the smaller, involute; stipules ovate, bifid: fruit axillary; perichætium three-leaved, compressed, two upper leaves narrow at the base, roundish-oblong, inner margins incurved; lower leaves oblong-ovate, bifid.

On stems of *Ulex europæus* and *Erica cinerea*, "on wet banks facing the north, over Finnehy river, near Kenmare, Co. of Kerry; (T. T.) At Dolgelly, North Wales; Mr. W. Wilson."

A minute species, bearing a strong resemblance to *J. minutissima*, Sm.; from which it may be distinguished by the presence of stipules,

by the large, flattened, three-leaved perichæcium, by the cauline leaves increasing in size as they approach the perichæcium, by the skin being less flexuose, by the leaves being more distant, and by the paler colour of the whole plant.

Dr. Taylor refers to Hooker's 'British Jungermanniæ,' tab. lii. fig. 3, as being "a just representation of the stem, leaves, and stipules of *J. ulicina* ;" and observes,

"It is remarkable that on the same stems of furze in the above locality, grew every one of the minute tribe to which the present species is allied, viz., *J. minutissima*, *J. hamatifolia*, *J. calyptrifolia*, and *J. serpyllifolia*."—p. 116.

2. *Jungermannia Lyoni*, (Taylor). Stem ascending, somewhat branched: leaves distichous, alternate, somewhat quadrate, concave, recurved, trifid; anterior lacinia rounded in front, posterior one reflexed, all acute or terminated by a single large tooth; stipules none: fruit at length lateral; calyces oblong, obtuse, inflated, rather naked at the base, mouth fringed and plaited.

"So great is the force of individual vegetation, that within the calyx, and alongside the pistilla, a bud may sometimes be seen to arise, and at length to emerge out of the calyx, clothed with leaves. Perhaps this viviparous condition of the calyx has not yet been observed in any other species. The plant nearest in natural affinity is probably *J. orcadensis*, *Hook.*, equally destitute of stipules, having a similar erect, scarcely-branched stem, growing up among tufts of mosses, but differing, 1st, by the leaves being simply emarginated, 2nd, by their margins being recurved, and so assuming, when moist, a convex and tumid appearance in front."—p. 117.

Resembling *J. barbata*, *Schreb.* and *J. incisa*, *Schrad.*, but differing from the former in the presence of stipules, in its more oblong calyx, and in its less concave, subsquarrose leaves, which are also less imbricated; and from the latter, in its larger size and ascending stems, in the leaves being anteriorly rounded and entire, with their lower lacinia reflexed and their cells smaller, in the more tumid and less plicate calyx, in its squarrose perichæcial leaves, in the leaves being more distant and paler in colour.

This species is described at considerable length, and illustrated by figures.

XVI. *Extracts from the Minute-Book of the Botanical Society, from November, 1840, to July, 1841.*

1840, *December 10.* Read, Extracts from a letter addressed to the Secretary, by the Rev. T. B. Bell, dated December 3, 1840, containing "Observations on the specific distinctions between *Asplenium Ruta-muraria*, and *A. alternifolium*."

Mr. Bell observes,—"I am aware some botanists have remarked, that attenuated forms of *Asplenium Ruta-muraria* approach indefinitely near *A. alternifolium*. I be-

lieve the two species have occasionally been confounded, but I always regarded this as a mistake into which no one could fall who had *perfect* specimens before him, and who was not prepared to substitute the general aspect and habit of the plants for their specific characters. As Mr. Newman, in his recent publication on Ferns, has fallen into this mistake, and conjoined the species, I think it not out of place to communicate to the Botanical Society the following brief observations : —

“The first character is taken from the form of the frond, which is correctly stated by Sir William Hooker to be bipinnate in *A. Ruta-muraria*, and, in *alternifolium*, pinnate, the lower pinna ternate; the pinnæ in both being alternate. Now so far from its being the tendency of attenuated or contracted forms of *A. Ruta-muraria* to approach the pinnate form of *alternifolium*—the truth of the matter is, that the more attenuated the former is, the more distinctly bipinnate does it become, or in other words, the nearer *A. Ruta-muraria* approaches *alternifolium* in its general aspect and habit, the further and more visibly does it diverge in *this* character.

“The second character is taken from the indusium, with regard to which it is hardly necessary to remark, that while that of *alternifolium* has a smooth even edge, the edge in all varieties of *Ruta-muraria* is invariably jagged or uneven, and this is quite visible to the naked eye.”—p. 119.

1841, *January* 14. Dr. E. F. Kelaart made some “Observations on the cultivation &c. of *Cinnamomum zeylanicum*.”

In these observations the cinnamon plantations of Ceylon were described at considerable length, and the distinguishing qualities of the three principal varieties of cinnamon mentioned. He also alluded to the Malabar cinnamon, “which included several sorts in one parcel, but amongst which only a few pieces are equal to the finer qualities of Ceylon cinnamon.” It was also remarked that the *Cassia lignea* of commerce is of three kinds; — “that from China, sometimes called Chinese cinnamon; that from the islands bordering on China; and that from the continent of India.” The former appears to be distinct from all the varieties of cinnamon, from which it differs in its texture, taste, colour, and other characters; “the quills of cassia are made of single rolls of bark — those of cinnamon are distinguished by being composed of several, one within the other.” The different products of cinnamon were described, and observations made on the botanical characters of the plants which yield the cinnamon and cassia of commerce; allusions were also made to the difficulties attending the investigation, caused by the contradictory statements of authors. The history of the various researches into the subject was adverted to, and Dr. K. concluded his observations with a brief description of the “several species of cinnamon growing in Ceylon, Java, and the Malabar coast; as also of the *Cinnamomum aromaticum*, or *Laurus Cassia* of Nees Von Esenbeck.”

Prof. Christison observed that for the last twenty-five years nothing

had been imported from Ceylon under the name of cassia-bark, and stated his reasons for believing the greater part of it to come from Canton. He also made some remarks on the plants from which the bark is produced.

Read, A Communication from Mr. T. Edmonston, jun., Balta Sound, Shetland, "On the native dyes of the Shetland Islands."

After some remarks on the materials formerly used for dying in the Shetland Isles, the author observes that the colours now made are only *brown, red, yellow and black*, to produce which the following plants are used. *Brown*; *Parmelia saxatilis*, called *Scrottyie*. *Red*; *Lecanora tartarea*, called *Korkalett*. *Black*; *Spiræa Ulmaria*. *Yellow*; *Stachys palustris*, the die is called *Hundie*: *Galium verum* is said to be used for the same colour in the parish of North Mavin. Besides these, the juice of the berries of *Empetrum nigrum* furnish a beautiful purplish-blue. The mode of using these different materials was explained.

February 11. Read, Notice of the discovery of the cones of *Pinus Mughus* (*Jacq.*), in peat bogs in Ireland. By Mr. Charles C. Babington, Cambridge. The specimen sent to the Society was found under "six feet of solid peat bog at Burrishoole, near Newport, Mayo." Prof. Don was of opinion that it was a "cone of *Pinus Mughus*, *Jacq.*, which, however, he considered a variety of *P. sylvestris*, but quite different from any of the varieties now native in Scotland."

"It is interesting to find that a tree which must have formed at least a portion of the native forest of that wild part of Ireland, in which a tree is now scarcely to be found, should be thus proved to belong to a form of *Pinus* not now native in Britain, but confined, I believe, to the Austrian Alps. The native forests of that part of Ireland have now been totally destroyed for about two hundred years, one clause in the original grants to English settlers having required their destruction and employment in the smelting of iron. Professor Don states, that these cones agree exactly with others that he has seen from the bogs of Armagh."—p. 126.

March 25. Read, a Notice of the disappearance of plants from particular localities. By Mr. J. Just, Bury, Lancashire. The first plant mentioned is *Lepidium Smithii*, *Hook.*, of which, in the summer of 1840, the author could not find a single specimen in a locality where it had previously abounded, although there was no apparent cause for its disappearance. *Orchis maculata* and the white-flowered variety of *Orchis mascula* are other cases mentioned. The white-flowered varieties of *Myosotis sylvatica* and *Geranium robertianum*, were introduced into a garden and allowed to shed their seeds, the plants from which show a disposition to revert to the original colour.

April 8. Mr. James Mc'Nab made a communication "On some anomalous methods of cultivating plants in hot-houses." This communication, with several illustrative wood-cuts, appeared in the 'Gardeners' Chronicle' for August 14, 1841. The plants experimented on were *Ficus elastica*, *Polypodium aureum*, *Acrostichum alciorne*, *Euphorbia splendens* and *Bilbergia nudicaulis*. The roots were first denuded of the soil; the plants of *Ficus* were suspended from the roof in various ways, with their roots entirely exposed; the *Polypodium*, *Acrostichum* and *Euphorbia* had their roots covered with moss, they were then suspended from the roof in an inverted position. All the plants thus treated grew well, and the ferns had a very handsome appearance.

July 8. Dr. Douglas MacLagan read a notice of the Chemical Constitution of the Fruit of a species of *Phytelephas*, commonly called "Vegetable Ivory." This fruit is the product of a South American plant, and has lately been much used as a substitute for ivory. The seed is triangular, from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long and from 1 to 2 broad; its substance is hard, and closely resembling ivory in its physical characters. The specimen examined, on being cut across, was found to have a cavity in the centre, the walls of which were soft and yielded to the nail. A portion of the white matter, including part of both the soft and hard substance, was analysed by the action of cold and hot water, alcohol, and subsequent incineration. The constituents of the portion examined are then stated, with their several proportions; and the results of a subsequent analysis of the ashes are also given. The notice is concluded with the statement that "from these experiments it appeared that there was nothing in the chemical constitution of the vegetable ivory, which could account for its hardness, which must be due only to a peculiar texture in the woody fibre."—p. 131.

ART. XCVII. — *Varieties.*

222. *Note on Primulas.* I have no other observation to make on the common yellow *Primulæ*, than that in the district haunted by me, in canton Appenzell, varying from 3000 to 8000 feet above the sea, not a specimen of *P. veris* (cowslip), or *P. vulgaris* (primrose), was to be seen, or, by the most diligent enquiry, had ever been heard of, that I could find. *P. elatior* (oxlip) was everywhere over the meadows, peeping up among the very earliest, on the first warm patches cleared of snow in *February*, and continuing to gladden the eye, more or less sparingly, according to the altitude and protection, until all is again covered up with snow in *November*. *P. veris* abounded

in the valleys below up to 1200 or 1400 feet. *P. vulgaris* I never saw in that part of Switzerland.—*Wm. Bennett* ; 21, *King William Street*, Sept. 20, 1842.

223. *Economical Use of the Dock.* As a counterpart to Mr. Lees's statement of the domestic use of the fern in the forest of Dean (*Phytol.* 263), I beg leave to add the following similar use of the neglected dock in this neighbourhood. In summers when food for pigs is scarce or difficult to be procured, the *dernier resort* of the housewife is the dock, which is then gathered and boiled in the manner described in the before-mentioned statement ; sometimes mixed with a few potatoes or a little barley-meal, it forms a very nice mess to help through the time of scarcity. Another use of them to the farmer's wife is as wrappers for her butter in bringing it to market, the greater portion being wrapped up in dock-leaves after they are washed clean ; it is only after these have failed, on the approach of winter, that they begin to use the cloth wrappers.—*James Bladon* ; *Pont-y-pool*, September 14, 1842.

224. *Enquiry respecting Bryum pyriforme.* Perhaps some of your readers would be able to say if the plant described in 'English Flora' under the name of *Bryum pyriforme* be the same as the one figured in 'Muscologia Britannica' under the same name. A short time ago as I was examining a few specimens of what I thought to be *Bryum pyriforme*, I was greatly surprised to find them so much at variance with the description of that plant by Sir W. Hooker, in 'English Flora,' vol. v. p. 60, wherein he says—"This differs from all other Brya in the remarkable shape of its leaves, which are almost wholly composed of nerve, except at the base, and there deeply serrated."—The point in which my plants differ from the description given by Sir W. Hooker, consists in the leaves being quite smooth on their edges. On turning to the 'Muscologia Britannica,' I find the figure in that work to represent leaves which are smooth at the base and somewhat serrated at the point. It will be evident, on examination, that the description above quoted and the figure in 'Musc. Brit.' do present characters sufficiently distinct to justify the adoption of two species.—*Samuel Gibson* ; *Hebden Bridge*, October 15, 1842.

225. *Note on Equisetum variegatum, var. Mackaii.* I have received the following communication from Dr. Scouler, correcting some mistakes into which he supposes I have fallen respecting the history of the Equiseta. He states that the var. *Mackaii*, or "*E. elongatum* of Hooker, was recognised as a distinct species by Mr. Whitla of Belfast, but that this gentleman's views were not adopted by any Irish botanist until the beginning of the present year. The plant was first found by Mr. Whitla in Colin Glen, near Belfast ; afterwards, in 1833, he found it in the Deer-park, near Glenarne. The remarkable variety of *E. variegatum* growing on the margin of the canal near Dublin, was found by Mr. Johnson, a very acute botanist."—*Edward Newman* ; 2, *Hanover St.*, *Peckham*, October 20, 1842.

226. *County Lists of British Ferns.* I most earnestly solicit from those botanists who may read this notice, assistance in forming a correct and complete county list of all the British species of ferns and allied genera. The plan I wish adopted is to give the name of every species that may occur, however common, because I regard it as quite possible that even such species as *Asplenium Ruta-muraria*, *Pteris aquilina* and *Lastræa Filix-mas*, may not occur in every county, and their non-occurrence would thus become known and a curious fact established. All observations and localities which the writers may consider of value are also solicited, especially with regard to the rarer species. It is my intention to use these lists as data for a general work ; each, if permission be given by the writer, will be handed over to 'The Phytologist,' for inser-

tion in its pages, prior to any other use being made of it. The subjoined list of Herefordshire ferns only, as far as I have had an opportunity of observing them, will perhaps show what is desired.

List of the Ferns of Herefordshire.

Lomaria Spicant. Abundant: Dinmore Hill, Shobden-hill woods, &c.	Lastræa spinulosa
Pteris aquilina	Athyrium Filix-fœmina irriguum
Allosorus crispus. Malvern Hills, (E. Lees).	Asplenium Adiantum-nigrum
Polypodium vulgare	Ruta-muraria
Phegopteris. Aymestree quarry, Shobden-hill woods.	Trichomanes
Dryopteris. Ditto, ditto.	Scolopendrium vulgare
Polystichum angulare aculeatum lobatum	Ceterach officinarum. Abundant: garden walls in the borough of Leominster.
Lastræa Oreopteris. West Hope, Dinmore, Aymestree quarry.	Ophioglossum vulgatum
Filix-mas dilatata	Cystopteris fragilis has been recorded as growing near Ludlow, but I am neither certain as to the locality nor the authority.

Each named variety might be recorded as a species, in order to save trouble: and where a species is recorded as having been found in a county, and the writer has not himself found it, the name of the finder or recorder might be added in parentheses.
—*Id.*

ART. XCVIII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 7, 1842.—Adam Gerard, Esq. in the chair. Donations to the library were announced from G. Francis, Esq. British plants were received from the Rev. A. Bloxham, Dr. Bossey, Messrs. Fordham, Bidwell, Doubleday, Holman, &c.

Mr. D. Stock, of Bungay, Suffolk, presented monstrosities, collected by him at Earsham, Norfolk, of *Scolopendrium vulgare* bearing two fronds, the one being barren and reniform, the other bearing sori and elongated, with the midrib spirally twisted. Also of *Aspidium lobatum*, with the rachis much abbreviated and slightly recurved, pinnæ numerous and overlapping; and of two abortive specimens of a rose from his garden, both of which produced perfectly formed and leafy branches from the axis of the flowers. Mr. Stock also presented specimens of *Thelephora caryophyllea* (new to Great Britain), discovered by him in August, 1841, in a plantation at Bungay, Suffolk. This is distinct from *Thel. terrestris* (syn. *Auricularia caryophyllea*, Bulliard), and *Thel. laciniata* (syn. *Helvella caryophyllea*, Bolton, and *Auricularia caryophyllea*, Sowerby).

Mr. John Thompson exhibited specimens of *Carex irrigua*, Sm., collected by him at Muckle Moss, near Thorngraston, Northumberland. Mr. Thomas Twining, jun., exhibited a large collection of cultivated specimens from Twickenham.

Read, the continuation of a paper from Mr. R. S. Hill, being "An Enquiry into Vegetable Morphology."

Irregular Metamorphoses of flowers are extremely common, and usually consist either of an actual multiplication of petals, or of the transformation of stamens and pistils into petals; the effect of these changes being the formation of double flowers, the impletion of which appears to take place in different ways in different plants. In most Icosandrous and Polyandrous plants, impletion appears to result almost entirely from the conversion of the stamens, and in some instances of the pistils, into petals; in the double varieties of *Ulex europæus* it results from the same change. In Oligandrous plants we usually find an actual multiplication of petals; as may be seen in the double stocks and wallflowers of our gardens. Where the impletion is the result of this alteration of the essential floral organs, the plants are necessarily barren. Such, however, is not the case with the Dahlia, Aster, and other plants which belong to the Corymbiferous section of Compositæ; in these the impletion results, first, from the change of the tubular florets of the disk into ligulate florets, the same as those of the ray, as in the Dahlia, and, secondly, by the simple enlargement and elongation of the tubular florets, as in the many varieties of the China Aster. Such monstrosities, from the fact of the essential organs not being in any way implicated, are capable of perfectly impregnating their ovules. Thus a knowledge of the mode in which impletion occurs, is of importance to the gardener, in order that he may be enabled to calculate on the possibility of producing new varieties by seed.

Dr. Lindley says that "these changes always occur in the order of development, or from the circumference to the centre; that is to say, that the calyx is transformed into petals, petals into stamens, and stamens into ovaria; but that the reverse does not take place." In proof of this hypothesis he further says "that if the metamorphosis took place from the centre to the circumference, or in a direction inverse to the order of development, it would not be easy to show the cause of the greater beauty of double flowers than of single; because the inevitable consequence of a reversed order of transformation would be that the rich or delicate colour of the petals, upon which all flowers depend for their beauty, would be converted into the uniform green of the calyx. Such a change therefore, instead of increasing the beauty of a flower, and making it superior to its original, would tend to destroy its beauty altogether." Now were this hypothesis correct, and founded on fact, what ought to be the condition in which we find the organs in double flowers? We ought surely to find the centre of the flower filled up with an increased number of pistils. But is this the case? It is plain it is not; indeed, were it the case, the beauty of a double flower would be most effectually destroyed. This theory must therefore fall to the ground, and we must confess that we are unable to find any laws by which the order of transmutation, in such monsters, is governed.

The aim and object with the cultivators of double flowers, is to convert all the floral organs into petals, and we generally refer to cultivation as the cause of flowers becoming double; farther than this we are ignorant of the causes of their impletion.—They probably owe their origin, at first, to accidental circumstances, and afterwards the variety is carefully propagated by the methods usually adopted for that purpose.

The two classes of vegetable functions, namely, the vegetative and reproductive, notwithstanding their close connexion, appear to be performed, in some degree, in opposition the one to the other; thus any excessive development of the one class, takes place at the expense of the other.—*T. S.*

THE PHYTOLOGIST.

No. XIX.

DECEMBER, MDCCCXLII.

PRICE 1s.

ART. XCIX. — *Notes on Botanical Excursions from Glasgow during the past Summer.* By J. H. BALFOUR, M.D., Regius Professor of Botany in the University of Glasgow.

DURING last summer I made botanical excursions every week with my pupils, and the results of some of these will, I hope, not be uninteresting to the readers of 'The Phytologist.'

My first trip was to Bowling, a small village on the banks of the Clyde, about ten miles west of Glasgow. The vegetation of the trap rocks in the neighbourhood is very luxuriant, but no plants of particular interest were gathered, except *Glyphomitrium Daviesii*. Our visit to Campsie Glen was more productive. Here my pupil Mr. Macleod picked *Equisetum Drummondii*, — the first time it had been seen in the neighbourhood of Glasgow. I have no doubt that this plant is abundant in many woods, and has often been mistaken for *E. arvense*. I picked it in profusion afterwards near the Falls of Clyde. Among other plants met with in or near the Glen I may notice *Geum intermedium*, a plant which is common in all the woods in this neighbourhood, *Viola lutea*, *Campanula latifolia*, *Geranium lucidum*, *Cardamine amara*, *Stellaria nemorum*, *Lysimachia thyrsoiflora*, *Polypodium Phegopteris*, *Vaccinium Oxycoccos* and *Buxbaumia aphylla*. *Carex pauciflora* was also seen in marshy ground near Strathblane, at a much lower level than usual.

The wooded banks of the Clyde at Hamilton and Cadzow furnish an ample supply of plants for the student of Botany. Here we found *Carex pendula*, *sylvatica* and *pallescens*, *Cardamine amara* and *Stellaria nemorum* in great luxuriance. *Veronica montana*, *Epipactis latifolia*, *Arum maculatum*, *Doronicum Pardalianches*, *Trollius europæus*, *Ornithogalum umbellatum*, *Euonymus europæus*, *Viburnum Opulus*, *Ribes alpinum*, *Ophioglossum vulgatum* and *Scolopendrium vulgare*. Near Bothwell Castle and Blantyre Priory we saw *Carex remota*, *Aquilegia vulgaris*, *Berberis vulgaris*, *Galium boreale*, *Geranium phæum* and *Allium vineale*. On the banks of the Clyde some alpine plants occur at an elevation considerably below that at which

they usually grow. Thus, near the Falls of Corra Lin there is considerable profusion of *Saxifraga oppositifolia* and *Asplenium viride*, — alpine plants, which, however, are not found on the mountains in the vicinity.

The facilities afforded by railway and steam enabled us to visit many interesting localities at a considerable distance from Glasgow. One of these was the island of Bute, famous for the mildness of its climate. We proceeded along the shore from Rothesay towards Mount-Stuart, and returned by a road across the island. In the course of our walk we gathered *Cotyledon Umbilicus* in great abundance, *Anagallis tenella*, *Saxifraga aizoides*, *Pinguicula lusitanica*, *Alisma ranunculoides*, *Sinapis monensis*, *Veronica scutellata*, *Anthyllis Vulneraria*, *Alsine peploides*, *Scirpus pauciflorus*, *Carex paniculata*, *Poa maritima*, *Osmunda regalis* and *Scolopendrium vulgare*.

Our next excursion was made in the neighbourhood of Ratho, a village about ten miles west from Edinburgh. We examined chiefly Ravelrig Bog and Dalmahoy Hills. In the woods at Dalmahoy we picked *Cephalanthera ensifolia*, *Pyrola minor* and *Listera ovata*; and on Dalmahoy Hill, *Saxifraga hypnoides*, *Viola lutea*, *Trientalis europæa* and *Epilobium angustifolium*. In Ravelrig Bog and the woods near it, we saw *Corallorhiza innata*, *Listera cordata*, *Potamogeton oblongus* and *Linnæa borealis*. Before returning to Glasgow we paid a visit to Linlithgow, and in the loch near the palace we found profusion of *Ceratophyllum submersum*? *Potamogeton crispus* and *pussillus*, *Nasturtium terrestre* and *Poa aquatica*.

The kindness of my friend John Smith Esq. LL.D., enabled us on another occasion to visit the romantic glens in the neighbourhood of his residence at Crutherland, about eleven miles south-east from Glasgow. On the wooded banks we met with *Carex stricta* in considerable quantity, *Carex sylvatica* and *remota*, *Epilobium angustifolium*, *Milium effusum*, *Impatiens Noli-me-tangere*, *Cistopteris fragilis*, *Polypodium Dryopteris* and *Phegopteris*. On the moors in the neighbourhood grow *Drosera anglica*, *Vaccinium Oxycoccus*, *Veronica scutellata*, *Callitriche platycarpa*, *Rhynchospora alba*, *Lycopodium Selago* and *Splachnum mnioides*. Near Langlands I gathered *Peucedanum Ostruthium** and *Lamium maculatum*, var. *β. lævigatum*.

The Island of Arran is interesting in a botanical as well as a geological point of view, and the facilities afforded by the Ayr railway and

* This plant was also picked subsequently near Kilwinning in Ayrshire, by my pupil Mr. James C. Murray.

the steam-boats from Ardrossan, induced me to visit it. The party spent two days on the island, making Brodick their head-quarters. Our first walk extended from Brodick, along the shore to Lamash; then to Whiting Bay, Dippin Point and Kildonnan Castle, whence we returned to Brodick. During this walk we gathered many interesting plants, among which may be mentioned *Sinapis monensis*, *Steenhamneria maritima* (the oyster-plant as it is called), *Glaux maritima*, *Poa maritima*, *Ammophila arenaria*, *Juncus maritimus* and *Gerardi*, *Scirpus maritimus*, *Blysmus rufus*, *Aster Tripolium*, *Solidago Virgaurea*, *Plantago maritima* and *Coronopus*, *Anagallis tenella* and *arvensis*, *Habenaria bifolia* and *chlorantha*, *Gymnadenia conopsea*, *Ranunculus sceleratus*, *Althæa officinalis*, *Atriplex rosea*, *Bromus arvensis*, *Carex arenaria*, *extensa* and *lævigata*, *Oenanthe crocata* and *pimpinelloides*, *Potamogeton oblongus*, *Erythræa Centaurium* (a variety with very narrow leaves, the *β. compressa* of some authors), and *Lycopodium selaginoides*. Between Lamash and Whiting Bay there is profusion of *Hypericum dubium* (Leers) and *Androsæmum*, *Cotyledon Umbilicus*, *Agrimonia Eupatoria*, *Eupatorium cannabinum*, and *Isolepis setacea*. Near Dippin Point, where there are fine trap cliffs, we met with *Convolvulus sepium*, *Verbascum Thapsus*, *Solanum Dulcamara*, *Conium maculatum*, *Ligusticum scoticum* and *Vicia sylvatica*.

In our second day's walk we proceeded by the sea-shore towards the northern part of the island. We visited Glen Sannox, ascended Goatfell, and returned by Glen Rosa to Brodick. Along the shore we found many of the species picked on the previous day, and besides these we noticed *Drosera anglica*, *Lycopus europæus*, *Polygonum lapathifolium*, *Osmunda regalis*, *Bidens tripartita*, *Corydalis claviculata*. Near the Inn at Brodick there is profusion of a variety of *Mentha rotundifolia*, called *velutina* by Mr. Babington; and here also we picked specimens of *Pastinaca sativa*. In Glen Sannox we searched in vain for *Avena planiculmis*, which was discovered there several years ago by Mr. Stewart Murray. The ascent of Goatfell from this glen is very steep and difficult, and the granitic debris is very unproductive. Goatfell itself, although attaining an elevation of about 2700 feet, does not yield many alpine plants. This may arise partly from its insular situation, and partly from the nature of the dry granitic rocks of which it is composed. The plants picked by the party were *Saxifraga aizoides* and *stellaris*, *Salix herbacea*, *Sedum Rhodiola*, *Alchimilla alpina*, *Armeria maritima*, var. *β. alpina*, *Empetrum nigrum*, *Juniperus communis*, var. *β. nana*, *Carex pauciflora* and *rigida*, *Agrostis vulgaris*,

var. *β. pumila*, *Festuca ovina*, var. *ε. vivipara*, and *Lycopodium Selago*. On descending into Glen Rosa we picked *Drosera anglica*, *Lythrum Salicaria*, *Molinia cærulea*, var. *β. alpina*, *Rhynchospora alba*, *Galeopsis versicolor*, *Habenaria bifolia* and *chlorantha* and *Vaccinium Vitis-Idæa*. On the sea-shore near the inn we also gathered *Sagina maritima* and *Eryngium maritimum*.

With the view of examining the Flora of the alpine districts, we made an excursion in July to the mountains on the shores of Loch Lomond. Leaving Glasgow at 4, P.M., we reached Tarbet in the evening. Here we took up our residence for two days, and made excursions in the neighbourhood. On the first day we proceeded along the shores of Loch Lomond, as far as the Sloy water; we then ascended the stream to Loch Sloy, and thence commenced our ascent of Ben Voirlich, a high hill near the head of Loch Lomond. On the shores of the Loch we picked *Osmunda regalis* and *Hymenophyllum Tunbridgensense* and *Wilsoni*, *Hypericum Androsæmum* and *Betula alba* and *glutinosa*. In Loch Sloy, *Lobelia Dortmanna*, *Littorella lacustris* and *Subularia aquatica* were seen. On Ben Voirlich the alpine plants collected were *Alchimilla alpina*, *Silene acaulis*, *Sibbaldia procumbens*, *Cerastium alpinum*, *Juncus trifidus* and *triglumis*, *Saussurea alpina*, *Gnaphalium supinum*, *Hieracium alpinum*, *Saxifraga aizoides*, *stellaris*, *hypnoides* and *nivalis*, *Carex rigida*, *Polystichum Lonchitis*, *Sedum Rhodiola*, *Polygonum viviparum*, *Poa alpina*, and a new *Poa*, called by Dr. Parnell *P. Balfouri*, *Aira alpina* and var. *vivipara*, *Festuca ovina*, var. *ε. vivipara*, *Epilobium alpinum* and *Thalictrum alpinum*. *Carex saxatilis* was gathered in great profusion on the descent of the hill towards the head of Loch Lomond. On the second day Ben Lomond was visited, and on it, besides most of the alpine plants already noticed on Ben Voirlich, we saw *Rubus suberectus* and *Chamæmorus*, *Scutellaria galericulata*, *Salix arenaria* and *Asplenium viride*.

On the shores of Loch Lomond we particularly remarked the great quantity of fruit produced this season, by the ordinary trees, as birch, beech, oak, alder, hazel, apple, holly, &c.

J. H. BALFOUR.

Glasgow, November 11, 1842.

ART. C. — *Additions to the Phænogamic Flora of ten miles round Edinburgh.* By THOMAS EDMONSTON, Esq.

Baltasound, Shetland Islands,

November 1, 1842.

SIR,

In the course of my botanising this season through the peculiarly rich and interesting district within ten miles of Edinburgh, having observed several plants not noted in the last List of the Flora of that district, I beg to hand you the catalogue of them, with habitats &c.; and also notes on a few of the rarer or more interesting species previously observed. If you should consider this trifling contribution to our knowledge of local Botany worthy of insertion in your valuable periodical, it is at your service.

I am, Sir,

Your very obedient Servant,

THOS. EDMONSTON.

To the Editor of 'The Phytologist.'

Bidens cernua, β . *radiata*. Lochend.

Bromus velutinus. Some dwarf specimens of the variety β . occurred near Musselburgh.

Callitriche platycarpa. Compensation pond on the Pentland hills, Lochend and Duddingston Lochs, &c. Afterwards observed in the former station by Mr. Babington, who assures me it is the true plant. It has not, I think, been previously noticed out of England.

Carex divisa. Pentland hills, scarce.

„ *incurva*. Musselburgh and Dalmeney. I also, late in the season, picked what I believe was this plant near St. David's, on the Fife side of the Firth, but it was too far gone to be identified properly. This species is probably often passed over as *C. arenaria*.

Cerastium holosteoides. The *C. triviale*, var. β . *holosteoides*, of the Edinburgh Botanical Society's Catalogue (2nd edit.) seems a distinct plant, as I shall soon endeavour to prove. The Edinburgh specimens agree with some from Kinfauns in Perthshire, exhibited at the Botanical Society last winter. Dalkeith.

Cerastium (tomentosum ?). Hills behind Aberdour.

Dianthus glaucus, Linn. (*D. deltoides*, β . *glaucus*, Hook.) Left unmarked in the Edinburgh Catalogue, but abundant in the King's Park. I should be disposed to consider it distinct.

Festuca ovina, ϵ . *vivipara*. Pentland hills, above Collinton. It

appears to me that some confusion exists with regard to the species called *F. vivipara* by Smith. The plant figured by that author [Eng. Bot. 1355], and abundant on all our more elevated hills, especially those of a micaceous character, seems to be distinct from the common *F. ovina* of our plains. It is not improbable that the alpine plant is the viviparous state of a distinct grass, which, from the great disposition of alpine grasses to assume the viviparous character, is seldom seen in its normal form, and is therefore sunk into *F. ovina*. The study of the alpine plant would repay any one conveniently situated for that purpose. I may notice, *en passant*, the curious tendency of alpine grasses, such as *Aira alpina*, *Poa alpina*, &c., to become viviparous. It would almost appear an effort of nature to make up for the paucity of seeds matured in such situations.

Pimpinella magna. I am not aware of this having been detected previously in Scotland. It occurs abundantly by the hedge-sides, shortly after leaving the village of Collinton, and proceeding westwards; probably merely a luxuriant variety of *P. Saxifraga*. The Collinton specimens agree perfectly with those from the Isle of Wight and numerous others in my collection.

Polygonum Raii. This is surely often confounded with the maritime variety of *P. aviculare* (I presume "*P. maritimum*, L." of the Edinburgh Catalogue), for the true plant occurs abundantly on both sides of the Firth of Forth. This is surely not the *P. Roberti* of the continental botanists, of which I possess specimens from the shores of the Adriatic, &c.

Ranunculus fluitans, Lam. Though now raised to the rank of a species, I cannot believe this to be anything more than one of the multifarious varieties of *R. aquatilis*; the differences merely lie in the very peculiar habit. It is sometimes two or three feet long, but this is occasioned by its growing in deeper water; it has also a curious tufted and sometimes almost geniculated appearance. Lochend.

Rubus nitidus, *rharnnifolius*, *suberectus*. Craigmillar Castle. I doubt not that many more of the reputed species of bramble may be found in this neighbourhood, and those fond of multiplying specific distinctions in this troublesome and intricate genus, will have abundant opportunity about the above-named station, the Peebles road, Dalkeith, Craigleith, and numerous other localities near Edinburgh. I will not attempt to name any but the above three, and I must confess, from my mite of experience, that I do think, without the slightest danger of confounding distinct plants, the arrangement of Koch might be followed in distinguishing nearly all our British species.

Salvia Sclarea. Armiston and Dalkeith; in all probability the outcast of a garden.

Sambucus nigra, β . *laciniata*. Collinton, Auchindenny and Dalhousie woods.

Saxifraga platypetala. Abundant at Habbie's How, Pentland hills. Whether this is only one of the forms of *S. hypnoides*, or a distinct species, seems still doubtful. The flowers are as large as, and have quite the appearance of, those of *S. granulata*, and the habit is more lax and elongated than in the common form.

Viola lactea. Arthur's Seat. A variety of *V. canina*, as I have proved by seeing every intermediate stage.

SPECIES PREVIOUSLY OBSERVED IN THE DISTRICT.

Adonis autumnalis. Fields near Comely bank; probably introduced.

Alopecurus agrestis. Preston pans. Beautiful specimens and very abundant in this station.

Arctium Bardana. This is again restored to the rank of a species, but I am unable to see permanent characters, and I must confess it seems to run into *A. Lappa*. What I believe to be an intermediate state, is the most common burdock about Edinburgh.

Bromus madritensis. Grange toll.

Barbarea præcox. Roslin, Currie, &c., not uncommon. The small flowers and large radical leaves of this plant are very constant in all the specimens I have seen.

Cardamine sylvatica. Very abundant, but appearing to run into *C. hirsuta*. In habit it combines the herbage of *C. amara* with the flowers of *C. hirsuta*, and is apparently a luxuriant variety of the latter.

Carex axillaris. Said to be found near Craigmillar Castle, but I have been unable to detect it there, and specimens I have seen under this name from that station, were varieties of *C. remota*.

Carex vesicaria. Duddingston Loch.

Cichorium Intybus. A rare Scottish plant, but very abundant and certainly indigenous near Granton, on the green slope on both sides of the road between the pier and Wardie.

Cochlearia danica. Abundant on both sides of the Firth.

Doronicum Pardalianches. Dalkeith, Hunter's tryste, &c. *D. plantagineum* is said to occur, but I cannot detect permanent characters.

Eranthis hyemalis. Craigmillar Castle.

THOS. EDMONSTON.

(To be continued).

ART. CI.—*A Flora of the Neighbourhood of Saffron Walden, Essex.*

By G. S. GIBSON, Esq.

- Clematis Vitalba*. Common in hedges.
Thalictrum minus. Near Linton; rare.
Anemone nemorosa. Woods and thickets, abundant.
 ——— *Pulsatilla*. Bartlow Hills and Hildersham.
Adonis autumnalis. Corn-fields, but rarely
Ranunculus aquatilis. Ponds and ditches, plentifully.
 ——— *Lingua*. At Sawston; rare.
 ——— *Flammula*. Marshy places, common.
 ——— *Ficaria*. A common weed.
 ——— *auricomus*. Woods &c., not uncommon.
 ——— *sceleratus*. Watery places, occasionally.
 ——— *acris, repens, and bulbosus*. Very common weeds.
 ——— *arvensis*. Corn-fields.
Helleborus fœtidus. Woods, rather unc.
Caltha palustris. Ditches &c., frequent.
Delphinium Consolida. Corn-fields, occasionally.
Berberis vulgaris. Common in hedges, though often eradicated by farmers, who imagine that it causes blight on wheat around.
Nymphaea alba. River at Audley End; perhaps planted.
Nuphar lutea. River &c. in several places
Papaver Argemone. Fields & hedge-banks occasionally.
 ——— *hybridum*. Once found in a field near the town.
 ——— *dubium*. Waste ground, frequent
 ——— *Rhæas*. A troublesome weed.
Chelidonium majus. Waste ground near the town, rather rare.
Fumaria officinalis. Fields and gardens, abundant.
 ——— *parviflora*. Cultivated fields at Littlebury.
Corydalis solida. In the Park, scarcely wild
- Cheiranthus Cheiri*. Park-walls, &c.
Nasturtium officinale. Ditches &c. abndt.
Barbarea vulgaris. Moist meadows, freqt.
Cardamine pratensis. Marshy ground, co.
 ——— *hirsuta*. A weed in gardens, &c. but local.
Draba verna. Walls, plentiful.
Thlaspi arvense. A weed in fields and gardens, though very local.
Sisymbrium officinale. Road-sides &c.fr.
 ——— *Sophia*. Waste ground, rare
Erysimum cheiranthoides. Walls and cultivated ground.
 ——— *Alliaria*. Hedges, frequent.
Camelina sativa. Cultivated fields, rare.
Coronopus Ruellii. Waste ground, not common
Capsella Bursa-pastoris. Abundant.
Brassica Napus. Waste ground, frequent
 ——— *Rapa*. Road-sides, occasionally.
Sinapis alba. Cultivated ground.
 ——— *arvensis & nigra*. Common weeds
Raphanus Raphanistrum. Ditto.
Reseda Luteola. Dry banks, not uncomn.
 ——— *lutea*. Chalky fields in several pl.
Helianthemum vulgare. Open banks, freq.
Viola hirta. Shady hedges, frequent.
 ——— *odorata and canina*. Abundant.
 ——— *tricolor*. A common weed.
Polygala vulgaris. Dry banks, not uncom.
Dianthus Armeria. Twice found in a field
 ——— *deltoides*. Hildersham, rare.
Saponaria officinalis. Moist meadows nr. Ickleton.
Silene inflata. Very common.
 ——— *noctiflora*. Corn-fields &c. occas.
 ——— *Armeria*. Waste ground, rare, the outcast of gardens.
Lychnis dioica (vespertina). Very common
 ——— ——— (*diurna*). Far less common
 ——— *Flos-cuculi*. Moist shady places
Agrostemma Githago. Corn-fields, freqnt.
Sagina procumbens and apetala. Walls & dry ground, plentiful.

- Spergula arvensis*. Fields occasionally.
 ——— *nodosa*. Meadows at Ickleton.
Stellaria media. Abundant everywhere.
 ——— *holostea*. Hedges, common.
 ——— *graminea*. At Linton.
Arenaria trinervis. Woods & shady hedges
 ——— *serpyllifolia*. Walls &c. common
 ——— *tenuifolia*. Walls at Audley End,
 rare.
Cerastium vulgatum. Not uncommon.
 ——— *viscosum* and *semidecandrum*.
 Fields and dry ground, common.
 ——— *arvense*. Dry chalky banks;
 Bartlow Hills, &c.
 ——— *aquaticum*. Sawston.
Linum usitatissimum. Cultivated fields,
 occasionally.
 ——— *catharticum*. Dry banks, common
Malva sylvestris and *rotundifolia*. Fields
 and roadsides, common.
 ——— *moschata*. Hedges in various places
Tilia europæa. Hedges &c. probably pl.
Hypericum Androsæmum. Near Newport,
 rare.
 ——— *perforatum*. Abundant.
 ——— *quadrangulum*. Watery places
 frequent.
 ——— *hirsutum*. Chalky banks, freq.
Parnassia palustris. Marshy meadows at
 Ashdon and Chesterford, rather rare
Acer campestre. Common in hedges.
 ——— *Pseudo-platanus*. Hedges, scarcely
 wild.
Geranium sanguineum. Thickets near
 Newport, rare.
 ——— *pratense*. Shortgrove Park, rare
 ——— *lucidum*. Old walls occasionally
 ——— *robertianum*. Hedges, common
 ——— *molle* and *dissectum*. Abundant
 ——— *pusillum*. Not uncommon.
Erodium cicutarium. Banks occasionally
Oxalis Acetosella. Woods, not very com.
Euonymus europæus. Hedges and groves
Rhamnus catharticus. Not rare in hedges
Ulex europæus. Barren ground, not very
 abundant.
 ——— *nanus*. Triplow, rather rare.
Genista tinctoria. Banks in several places
- Cytisus Scoparius*. Near Newport, not
 common.
Ononis arvensis. Borders of fields, plentiful.
Anthyllis Vulneraria. Chalky banks, co.
Medicago lupulina. Abundant.
 ——— *sativa*. Cultivated ground, not
 wild.
Melilotus officinalis. Fields and hedges,
 sparingly.
Trifolium repens and *pratense*. Very com.
 ——— *ochroleucum*. Fields & hedges,
 not rare.
 ——— *medium*. Moist meadows in se-
 veral places.
 ——— *scabrum*. Dry banks at Hil-
 dersham.
 ——— *fragiferum*. Road-sides and
 moist meadows.
 ——— *procumbens* and *minus*. Dry
 pastures &c. common.
 ——— *filiforme*. Near Hildersham &c.
Lotus corniculatus. Very common.
 ——— *major*. Watery places, not rare.
Astragalus glycyphyllos. Borders of fields
 rather sparingly.
Hippocrepis comosa. Dry chalky banks.
Onobrychis sativa. Cultivated fields and
 banks, frequent.
Vicia Cracca, *sativa* and *sepium*. Fields
 and hedges, common.
Ervum hirsutum & *tetraspermum*. Woods
 and shady hedges.
Lathyrus Aphaca. Borders of fields in
 several places.
 ——— *Nissolia*. Woods &c. but rare.
 ——— *pratensis*. Common.
 ——— *sylvestris*. Woods and hedges in
 several places.
 ——— *latifolius*. Woods &c. scarcely
 wild.
Prunus domestica. Hedges occasionally.
 ——— *insititia*. Not uncommon.
 ——— *spinosa*. Abundant.
 ——— *Cerasus*. Woods and hedges near
 Quendon, &c.
 ——— *Padus*. Woods, rare.
Spiræa Filipendula. Bartlow Hills, New-
 port, &c.

- Spiræa Ulmaria*. Watery places, com.
Geum urbanum. Freqnt. in shady hedges
Rubus rhamnifolius. Rare about Walden
 — *fruticosus* and *cæsius*. Very freqnt
 — *corylifolius*. Widdington, &c.
Fragaria vesca. Shady hedges and woods
Potentilla anserina and *reptans*. Very co.
 — *argentea*. Near Hildersham.
 — *Fragariastrum*. Woods &c. fre.
Tormentilla officinalis. Not very common
Agrimonia Eupatoria. Borders of flds. fre.
Alchimilla vulgaris. Waste grnd. very ra.
 — *arvensis*. Dry fields, common
Poterium Sanguisorba. Pastures and
 banks, frequent.
Rosa tomentosa. Woods and hedges in se-
 veral places.
 — *rubiginosa*. Near Chesterford &c.,
 not rare.
 — *canina*, *sarmentacea* and *arvensis*.
 Common in hedges.
Cratægus Oxyacantha. Abundant.
Pyrus communis. Woods and hedges, ra-
 ther rare.
 — *Malus*. Not uncommon.
 — *aucuparia*. Woods at Debden, ra.
Epilobium angustifolium. Shortgrove
 Park, not common.
 — *hirsutum* and *parviflorum*.
 Ditches &c. very common.
 — *montanum*. Waste ground &
 walls, plentiful.
 — *tetragonum*. Watery places,
 occasionally.
Oenothera biennis. Waste ground, rare
 and not wild.
Circæa Lutetiana. Gardens and shady pl.
Hippuris vulgaris. River at Audley End.
Myriophyllum spicatum. Ponds, not co.
Callitriche verna. Very common.
 — *autumnalis*. In the Park &c.
 not rare.
Lythrum Salicaria. Ditches, frequent.
Bryonia dioica. A common weed.
Scleranthus annuus. Dry fields at Linton,
 sparingly.
Sempervivum tectorum. On many roofs
 and walls.
- Sedum Telephium*. Hedge-banks, rather
 uncommon.
 — *dasyphyllum*. On garden walls,
 scarcely wild.
 — *album*. Roofs, but rare.
 — *acre*. Dry banks at Linton.
 — *reflexum*. Roofs, but rare.
Ribes rubrum and *Grossularia*. Hedges
 occasionally.
Saxifraga granulata. At Hildersham &c.
 — *tridactylites*. Walls &c. not
 uncommon.
Hydrocotyle vulgaris. About Linton.
Sanicula europæa. Woods and thickets.
Conium maculatum. Road-sides, common.
Petroselinum segetum. Fields and hedge-
 banks, very rare.
Helosciadium nodiflorum. Common.
Sison Amomum. Borders of fields, freqt.
Ægopodium Podagraria. A troublesome
 weed.
Pimpinella Saxifraga. Dry pastures, ab.
 — *magna*. Shady places at Lit-
 tle Walden.
Sium angustifolium. Ditches, not very co.
Bupleurum rotundifolium. Corn-fields at
 Linton &c. sparingly.
Oenanthe fistulosa and *Phellandrium*. Ri-
 ver at Littlebury.
Æthusa Cynapium. A common weed.
Silaus pratensis. Borders of fields, not unc.
Angelica sylvestris. Moist woods, freqnt.
Pastinaca sativa. A troublesome weed.
Heracleum Sphondylium, *Daucus Carota*,
 and *Torilis Anthriscus*. Common.
Torilis infesta. Corn-fields and road-sides,
 not uncommon.
 — *nodosa*. Hedge-banks, frequent.
Scandix Pecten and *Anthriscus sylvestris*.
 Abundant.
Chærophyllyum temulentum. Fields, freqnt.
Adoxa Moschatellina. Woods, rare; Pe-
 verell's &c.
Hedera Helix. Plentiful.
Cornus sanguinea. Hedges &c. common.
Viscum album. Orchards at Debden.
Sambucus Ebulus. Moist meadows at
 Wenden, Bartlow, &c.

- Sambucus nigra*. Abundant.
Viburnum Opulus. Not rare.
 ——— *Lantana*. Hedges, frequent.
Lonicera Periclymenum. Very common.
 ——— *Xylosteum*. At Littlebury; but doubtful if wild.
Galium verum and *Mollugo*. Common.
 ——— *cruciatum*. Littlebury.
 ——— *palustre*. Watery places, very fr.
 ——— *saxatile*. At Audley End.
 ——— *tricorne*. Corn-fields at Linton and Widdington.
 ——— *Aparine*. Very abundant.
Sherardia arvensis. Fields, frequent.
Asperula odorata. Woods in several places
 ——— *cynanchica*. Dry chalky banks, plentiful.
Valeriana dioica. Marshy pl. occasionally
 ——— *officinalis*. Frequent.
Fedia olitoria. Corn-fields.
 ——— *dentata*. At Bartlow and Linton.
Dipsacus sylvestris. Road-sides, common.
 ——— *pilosus*. Clavering &c. but rare
Scabiosa succisa. Pastures in various parts
 ——— *columbaria*. Dry banks, common
Knautia arvensis. Plentiful.
Tragopogon pratensis. Pastures &c. frequent.
Helminthia echinoides. Borders of fields, not rare.
Picris hieracioides. Road-sides, Little Walden, &c.
Apargia hispida, *A. autumnalis*, *Hypochaeris radicata* & *Crepis virens*. Very com.
Sonchus arvensis. Frequent in fields &c.
 ——— *oleraceus* and *Leontodon Taraxacum*. Everywhere.
Hieracium Pilosella. Com. in dry pastures
Lapsana communis. A common weed.
Cichorium Intybus. Road-sides frequent
Arctium Lappa and *Bardana*. Woods and hedges, common.
Serratula tinctoria. Borders of woods, ra.
Carduus nutans and *acanthoides*. Hedges
 ——— *marianus*. Hedges occasionally; Widdington, &c.
Cnicus lanceolatus and *arvensis*. Abundant
 ——— *palustris*. Moist meadows, frequent, and in woods.
- Cnicus eriophorus*. Banks &c. in several places about Walden.
 ——— *pratensis*. In pastures, rare.
 ——— *acaulis*. Dry banks and pastures, common.
Onopordum Acanthium. Road-sides, not r.
Carlina vulgaris. Dry banks, not common
Bidens tripartita. Ponds, but rare.
 ——— *cernua*. Pond at Ashdon.
Eupatorium cannabinum. Moist woods fr.
Tanacetum vulgare. In the Park, rather r.
Artemisia Absinthium. Road-sides, sparingly.
 ——— *vulgaris*. Very common.
Gnaphalium sylvaticum. Wood at Widdington, rare.
 ——— *uliginosum*. Moist rd-sds. &c.
 ——— *germanicum*. Dry pastures, frequent.
Petasites vulgaris. Mead. at Audley End.
Tussilago Farfara. Very common.
Erigeron acris. Near Littlebury, rare.
Senecio vulgaris & *Jacobæa*. Very abundant.
 ——— *sylvaticus*. Near Hildersham, ra.
 ——— *aquaticus*. Ditches, common.
Inula Conyza. Woods, not frequent.
Pulicaria dysenterica. Common.
Doronicum Pardalianches. At Widdington, very rare.
Bellis perennis. Everywhere abundant.
Chrysanthemum Leucanthemum. Common
 ——— *segetum*. Fields &c., rather rare.
Pyrethrum Parthenium. Waste gr. occas.
 ——— *inodorum*, *Anthemis Cotula* & *Achillæa Millefolium*. Common.
Centaurea nigra. Abundant.
 ——— *Scabiosa*. Hedges, frequent.
 ——— *Cyanus*. Corn-flds. not uncom.
Campanula rotundifolia. Dry banks, co.
 ——— *Trachelium*. Hedges at Wick-en, rare.
 ——— *glomerata*. Open chalky pastures, frequent.
 ——— *hybrida*. Corn-flds. not uncom.
Calluna vulgaris. Ickleton Grange, rare.
Monotropa Hypopitys. Plantation near Debden.

- Ilex Aquifolium*. Hedges at Newport and Quendon.
- Ligustrum vulgare*. Hedges in several pl.
- Fraxinus excelsior*. Common.
- Vinca minor*. Hedge-banks in several pl.
- *major*. Shady banks, but rare.
- Erythraea Centaurium*. Pastures &c. occasionally.
- Gentiana Amarella*. Dry banks, rare.
- Chlora perfoliata*. Banks and ditches occasionally, not common.
- Menyanthes trifoliata*. Moist meadows at Ickleton.
- Convolvulus arvensis*. Very common.
- *sepium*. Gardens and moist hedges, frequent.
- Cuscuta europæa*. Rare.
- *Epithymum*?* On clover, but rare
- Echium vulgare*. Dry pastures &c. not pl.
- Lithospermum officinale*. Plantations at Debden.
- *arvense*. Waste gr. occas.
- Symphytum officinale*. Watery places, fr.
- Borago officinalis*. Waste gr. occasionally
- Lycopsis arvensis*. Sandy ground about Linton.
- Myosotis palustris*. Common.
- *cæspitosa*. Audley End &c. not r.
- *arvensis*. Abundant.
- Cynoglossum officinale*. Road-sides, not very common.
- Datura Stramonium*. Waste gr. very rare.
- Hyoscyamus niger*. Road-sides and banks occasionally.
- Solanum Dulcamara*. Hedges and thickets, frequent.
- *nigrum*. Gardens and rich waste ground.
- Orobanche elatior*. Hedge banks, not rare.
- *minor*. Clover-fields, rare.
- Veronica serpyllifolia*, *Chamædrys*, *hederifolia*, *agrestis*, and *arvensis*. Waste ground, fields, &c. abundant
- *Anagallis* and *Beccabunga*. Frequent in watery places.
- Veronica officinalis*. Wood at Widdington, rare.
- Bartsia Odontites*. Corn-fields &c. frequent.
- Euphrasia officinalis*. Dry banks.
- Rhinanthus Crista-galli*. Moist meadows
- Melampyrum cristatum*. Common in many groves and shady hedges.
- Pedicularis palustris*. Meadows at Chesterford.
- Antirrhinum majus*. Garden-walls, naturalized.
- Linaria Cymbalaria*. Old walls &c.
- *spuria*. Corn-fields, not uncommon.
- *Elatine*. Less common than the preceding.
- *vulgaris*. Common.
- *minor*. Fields and waste ground sparingly.
- Scrophularia nodosa*. Woods and hedges, not uncommon.
- *aquatica*. Ditches, common.
- *vernalis*. Hedges at Hempsted.
- Digitalis purpurea*. Near Quendon, but very rare.
- Verbascum Thapsus* and *nigrum*. Banks and fields, frequent.
- Lycopus europæus*. Ditches & ponds, occ.
- Salvia Verbenaca*. Dry banks not uncommon.
- Mentha sylvestris*. Watery places in the Park &c. rare.
- *viridis*. At Wenden.
- *gracilis*. Audley End, rare.
- *hirsuta*. Ditches, common.
- Thymus Serpyllum*. Dry banks, common
- Teucrium Scorodonia*. Woods at Quendon, rare.
- Origanum vulgare*. Common.
- Ajuga reptans*. Woods, frequent.
- Ballota nigra*. Very common.
- Galeobdolon luteum*. Borders of woods, but scarce.
- Galeopsis Ladanum* and *Tetrahit*. Corn-fields &c. not uncommon.
- Lamium album* & *purpureum*. Very com.

* The specimens sent by Mr. Gibson have the calyx nearly as long as the corolla, and the scales in the throat of the latter appear to be more deeply cut than those in *C. Epithymum*, but in dried specimens they cannot be satisfactorily examined.—*Ed.*

- Lamium amplexicaule*. Waste gr. occas.
 ——— *incisum*. Rare in waste ground.
Betonica officinalis. Woods in several pl.
Stachys sylvatica. Shady hedges, common
 ——— *palustris*. At Chesterford, &c.
 ——— *arvensis*. Corn-fields, not common
Nepeta Cataria. Road-sides in various prts.
Glechoma hederacea. Abundant.
Acinos vulgaris. Cultivated fields, occas.
Calamintha officinalis. Rare; near Chesterford.
 ——— *Nepeta*. Chalky banks freqt.
Clinopodium vulgare. Borders of fields, common.
Prunella vulgaris. Pastures, common.
Scutellaria galericulata. Ditches in the Park, &c.
Verbena officinalis. Hedge-banks and near houses, frequent.
Anagallis arvensis. Abundant.
 ——— *tenella*. At Sawston, not comn.
Lysimachia Nummularia. Moist sha. pl.
Hottonia palustris. At Sawston, rare.
Primula vulgaris. Woods, abundant.
 ——— *elatior*. Not rare in woods.
 ——— *veris*. Pastures, very abundant.
Plantago major. Borders of fields, comn.
 ——— *media*. Too abundant.
 ——— *lanceolata*. Very common.
Amaranthus Blitum. Once found on a dunghill.
Chenopodium Bonus-Henricus. Road-sides &c. common.
 ——— *rubrum?* and *murale*. Cultivated ground, but rare.
 ——— *album*. Very common.
 ——— *ficifolium*. Cultivated and waste ground.
Atriplex patula and *angustifolia*. Fields &c. not uncommon.
Polygonum Bistorta. Meadows near Quendon, rare.
 ——— *aviculare*. Very common.
 ——— *Fagopyrum*. Cultivated fields, not wild.
 ——— *Convolvulus*. Corn-fields &c. frequent.
 ——— *amphibium*. Ponds, not unc.
- Polygonum Persicaria* and *lapathifolium*.
 Waste ground and moist road-sides, common.
 ——— *Hydropiper*. On mud-heaps.
Rumex Hydrolapathum. River-side at Ickleton.
 ——— *crispus* and *obtusifolius*. Troublesome weeds.
 ——— *acutus*. Moist shady places.
 ——— *pulcher*. Dry banks, not uncomn.
 ——— *Acetosa*. Very common.
 ——— *Acetosella*. Dry pastures in several places.
Daphne Mezereum. Hedges occasionally, but very rare.
 ——— *Laureola*. Woods and groves, ra.
Thesium linophyllum. Open banks at Hildersham.
Mercurialis perennis. Common in hedges and woods.
 ——— *annuus*. A weed in gardens, but local.
Euphorbia helioscopia and *Peplus*. Common weeds.
 ——— *platyphylla*. Corn-fields, v. ra.
 ——— *Cyparissias*. Plantations at Audley End.
 ——— *exigua*. Corn-fields &c. freqt.
 ——— *Lathyrus*. Rich waste ground, occasionally.
 ——— *amygdaloides*. Shady hedges and groves.
Urtica dioica and *urens*. Too com. weeds
Parietaria officinalis. Under walls &c.
Humulus Lupulus. Hedges, not uncom.
Ulmus campestris, *suberosa* and *glabra*.
 Frequent in hedges.
 ——— *montana*. Hedges, not very comn.
Betula alba. Hedges and woods occasio.
Alnus glutinosa. Moist woods &c. freqt.
Salix Helix. At Chesterford.
 ——— *triandra* and *Hoffmanniana?* Osier ground.
 ——— *amygdalina*. Hedges at Sewers End.
 ——— *fragilis*. Frequent.
 ——— *Ruselliana*. Audley End.
 ——— *alba*. Very common.
 ——— *vitellina*. Hedges in several places.

- Salix viminalis*. Osier-ground, &c.
 — *cinerea*, *aquatica* and *oleifolia*.
 Hedges &c. frequent.
 — *caprea*. Hedges, not uncommon.
Populus tremula. Woods, frequent.
 — *nigra*. Banks of rivers &c. In several places.
Fagus sylvatica. Woods and hedges, oc.
Quercus Robur. Abundant.
 — *sessiliflora*. Frequent.
Corylus Avellana. Very common.
Carpinus Betulus. Woods, frequent.
Juniperus communis. Rare; (once grew at Hadstock).
Alisma Plantago. Ditches and ponds, fr.
Sagittaria sagittifolia. At Chesterford, rather rare.
Butomus umbellatus. Near Sampford, ra.
Arum maculatum. Hedges, common.
Typha latifolia. About Duxford.
Sparganium ramosum. Ditches and ponds frequent.
Lemna trisulca. Ditches, rare.
 — *minor*. Abundant.
Potamogeton densus. Pond at Audley End
 — *crispus*. Ponds in several pl.
 — *natans*. Common.
Zannichellia palustris. Pond at Audley End, rare.
Paris quadrifolia. Hales wood and other places.
Fritillaria Meleagris. Meadows near Bumpsted, rare.
Allium vineale. At Hildersham, sparingly
Ornithogalum umbellatum. Hinxton.
Hyacinthus non-scriptus. Groves and thickets, common.
Juncus glaucus, *effusus* and *conglomeratus*. Watery places, frequent.
 — *acutiflorus* and *obtusiflorus*. Linton, not common.
 — *lampocarpus*. Marshy places, com.
 — *compressus*. Marshes, occasionally
 — *bufonius*. Road-sides, common.
Luzula sylvatica. Woods, common.
 — *Forsteri*. Not rare in woods.
 — *campestris*. Dry pastures, frequent.
Neottia spiralis. Near Linton, rare.
- Listera ovata*. Woods in several places.
 — *Nidus-avis*. Moist woods, very r.
Epipactis latifolia. At Debden, &c.
 — *grandiflora*. Shortgrove Park, &c. sparingly.
Orchis Morio. Pastures, not uncommon.
 — *conopsea*. Clay pastures, rare.
 — *mascula*. Woods &c. plentiful.
 — *ustulata*. At Linton, rare.
 — *pyramidalis*. Chalky banks, not un.
 — *latifolia*. Marshy ground.
 — *maculata*. Common.
Habenaria viridis. At Wimbush.
 — *bifolia*. Woods at Debden, &c.
Aceras anthropophora. Very rare at Linton
Ophrys apifera. Pastures &c. in sev. pl.
 — *aranifera*. Dry open chalky banks near Hildersham, very sparingly.
 — *muscifera*. Woods at Widdington &c. rare.
Iris Pseudacorus. Osier ground, not very common.
 — *faetidissima*. Woods, but rare.
Crocus sativus. This plant, formerly cultivated here to so great an extent as to form the principal trade of the town, from which its name "Saffron" is derived, had been long entirely extinct till a few years ago, when some plants came up in newly trenched ground; these have however nearly disappeared again. The cultivation of it has ceased for about half a century; and the fact of its having so soon become extinct clearly demonstrates that it has but little claim to be included among our native or even naturalized plants.
- Narcissus biflorus*. Once found near Little Walden.
 — *Pseudo-Narcissus*. Meadows near Quendon, rare.
Galanthus nivalis. Old orchard, Littlebury
Tamus communis. Hedges, not uncommon.
Scirpus lacustris. Pond at Audley End.
 — *setaceus* and *Eleocharis palustris*. At Audley End.
Eleocharis multicaulis. At Ickleton.

- Eriophorum polystachion* and *angustifolium*. Ickleton and Sawston.
Carex stellulata. Near Bartlow &c.
 — *remota*, *intermedia* and *divulsa*. Moist meadows, at Chesterford &c.
 — *vulpina*. Ditches, common.
 — *paniculata*. In the park &c.
 — *acuta*. At Chesterford.
 — *sylvatica*. Woods, not uncommon.
 — *pendula*. Shady hedges in sev. pl.
 — *recurva*. Common.
 — *præcox*. Dry banks at Hildersham.
 — *pilulifera*. At Chesterford.
 — *hirta*. Woods and hedges, frequent.
 — *ampullacea*. Chesterford.
 — *paludosa*. Road-sides.
 — *riparia*. Osier-ground &c. common.
 — *panicea*. At Ickleton.
Anthoxanthum odoratum and *Alopecurus pratensis*. Plentiful.
Alopecurus agrestis. Fields and road-sides, frequent.
 — *geniculatus*. Banks of ponds, not uncommon.
Phleum pratense. Abundant.
Milium effusum. Woods, occasionally.
Calamagrostis lanceolata. Moist woods, rather rare.
Agrostis canina. Marshy ground, common.
 — *vulgaris* and *alba*. Hedge-banks and moist meadows, common.
Catabrosa aquatica. Ditches in the Park.
Aira cristata. Dry chalky banks, frequent.
 — *cæspitosa*. Shady places, frequent.
 — *caryophyllea*. Dry banks &c. not uncommon.
Melica cærulea. At Ashdon, but rare.
Holcus mollis. Hedges and woods.
 — *lanatus* and *Arrhenatherum avenaceum*. Abundant.
Poa aquatica. River at Littlebury.
 — *fluitans*. Ponds and ditches, frequent.
 — *rigida* and *compressa*. Walls and dry ground, not uncommon.
 — *trivialis*, *pratensis* & *annua*. Very frequent.
 — *nemoralis*. Woods in several places.
Triodia decumbens. Chesterford, rather rare.
Briza media. Meadows, frequent.
Dactylis glomerata. Abundant.
Cynosurus cristatus. Pastures &c. frequent.
Festuca ovina and *duriuscula*. Dry pastures &c. not uncommon.
 — *bromoides*. Linton, rather rare.
 — *lohiacea*. In the Park, not common.
 — *pratensis*. Very frequent.
 — *elatior*. Moist shady places, common.
Bromus giganteus and *asper*. Hedges and thickets in several places.
 — *sterilis*. Pastures and hedges, frequent.
 — *secalinus*. Corn-fields occasionally, but rare.
 — *mollis*. Abundant.
 — *racemosus*. Meadows &c. not uncommon.
 — *erectus*. Near Littlebury, rare.
Avena fatua. Too abundant in corn-fields.
 — *pratensis*. Near Hildersham.
 — *pubescens*. Dry banks in several places.
 — *flavescens*. Plentiful.
Arundo Phragmites. Marshy ground, not uncommon.
Elymus europæus. Woods, but rare.
Hordeum murinum. Walls and dry ground frequent.
 — *pratense*. Meadows, not uncommon.
Triticum caninum and *repens*. Too abundant.
Brachypodium pinnatum. Open banks &c. occasionally, rather rare.
 — *sylvaticum*. Woods & hedges.
Lolium perenne. Very abundant.
 — *temulentum*. Corn-fields, not uncommon.
 — *arvense*. Corn-fields, rare.
Phalaris canariensis. Waste ground, occasional.
 — *arundinacea*. Banks of ponds, not rare.
Polypodium vulgare. Shady hedges, occasional.
Aspidium Filix-mas. Hedges &c. not uncommon.
Asplenium Trichomanes. Walls at Wicken, rare.
 — *Ruta-muraria*. Walls at Audley End.
Scolopendrium vulgare. Hedges &c. rather rare.
Pteris Aquilina. Not plentiful.
Botrychium Lunaria and *Ophioglossum vulgare*. Near Linton, but rare.
Equisetum fluviatile. Watery places, occasional.
 — *arvense*. Corn-fields &c. common.
 — *palustre*. Marshy ground, frequent.

ART. CII. — *A List of the rarer Flowering Plants and Ferns of the Neighbourhood of Dumfries; with Remarks on the Physical Conditions of the District.* By PETER GRAY, Esq.

ANNEXED is a list of the less common flowering plants and ferns, growing in the vicinity of Dumfries; and perhaps, by way of introduction, a hasty sketch of the boundaries and physical aspect of the region thus illustrated, may not be altogether inappropriate.

The Nith, in its course through the district to which it gives name, flows through three basins or valleys, which, according to the speculations of some geologists, have, at a remote period, formed the beds of as many lakes, successively drained by the river into the Solway Frith. The lowest of these, the vale of Dumfries, is enclosed on all sides, except the south, by hills chiefly composed of greywacké, and, viewed from the heights around that town, presents a natural amphitheatre of great beauty; the undulating surface characteristic of the new red sandstone formation, here the predominating one, together with the intersecting ridges that mark the outer channels of the principal river and its tributary streams, tending pleasingly to diversify the scenery of the interior.

The immediately environing hills are of no great height; but, on the north, the Moffat range, and among them Queensberry, which attains an elevation of 2259 feet, overtop these, and, although at some distance, appear continuous. On the west, the numerous ravines between them are filled, and the hills themselves belted or crowned with, plantations of modern growth, abounding in *Rubus saxatilis*, *Vaccinium Myrtillus*, *Polypodium Phegopteris* and *Dryopteris*; where bare of wood, *Gymnadenia conopsea*, *G. albida*, *Habenaria viridis* and *Lycopodium clavatum*, *alpinum*, *Selago* and *selaginoides*, are also met with. Criffel, a syenitic hill 1895 feet high, forms the southern terminus of these hills, and although good ground for the cryptogamist, is nowise rich in the rarer flowering plants. Loch Kinder, at its base, furnishes *Lobelia Dortmanna* in abundance.

On the south-east, and approaching close upon the town, lies the extensive morass of Lochar Moss, occupying many thousand acres. Although not perhaps so fruitful in botanical rarities as might be anticipated from its great extent, this moss contains a few good plants. Among these may be enumerated the pretty little *Utricularia minor*, in some places exceedingly abundant, *Ranunculus Lingua*, *Drosera longifolia* and *anglica*, *Bidens tripartita*, with several of lesser note.

I shall just particularize another locality, to which frequent reference will be made in the catalogue. Near the suburb of Maxwelton there is, or rather has been, a system of small lochs, now all drained, with the exception of the last of the series, itself considerably reduced in size. This little district, while it may be said to present an epitome of the dale in its geographical details, affords also almost every species found in the valley, with others—such as *Carex limosa*, *C. filiformis*, *Eriophorum pubescens*, *Lysimachia vulgaris* and *Lycopus europæus*—that have not been observed in any other part of the latter.

These circumstances, together with its proximity to the town, render it the favourite haunt of our Dumfries botanists.

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- Aira caryophyllea* and *flexuosa*. Very com. — *præcox*. Glen.
- Alisma ranunculoides*. Maxwelton Loch, abundant; very luxuriant in ditches near Carlaverock castle.
- Allium vineale*. Banks of Nith near Lincluden abbey.
- Alsine marina*. Shores of the Solway.
- *rubra*. On a wall opposite Portland place, Maxwelton.
- Ammophila arenaria*. Nith nr. Carsethorn.
- Anchusa sempervirens*. Near Rosehall; Catton's loaning. In both places in all likelihood introduced.
- Anagallis tenella*. Abundant near Burran point.
- Andromeda polifolia*. Terregles wood; about Maxwelton loch: plentiful.
- Avena pratensis*. Terregles, banks of the Nith, &c.
- *pubescens*. Craigs.
- Berberis vulgaris*. Plintatns. nr. Lincluden
- Bidens cernua*. Lochar-moss; abundant.
- *tripartita*. Lochar-moss.
- Brachypodium sylvaticum*. Craigs; banks of the Nith, &c.
- Bromus asper*. Woods & hedges, not unc.
- *erectus*. New Abbey church-yard
- *racemosus*. Banks of the Nith and near Terregles.
- *secalinus*. In wheat-fields.
- Calamintha Acinos*. Castle-Douglas road, about a mile from Dumfries; Glen; sparingly in both localities.
- Campanula latifolia*. Banks of Nith near Lincluden abbey; Cluden craigs; hazel-copse near Grove.
- Cardamine amara*. Cluden craigs.
- Carex dioica*. Near Maxwelton loch; Irongray hills.
- *filiformis*. Near Maxwelton loch.
- *fulva*. About Maxwelton loch.
- *muricata*. Near Lincluden abbey.
- *œderi*. About Maxwelton loch.
- *pilulifera*. Irongray hills.
- *limosa*. Terregles woods; boggy ground near Maxwelton loch.
- Carum verticillatum*. Very abundant about Maxwelton loch; meadow near Mahie-moss.
- Catabrosa aquatica*. Moat of Carlaverock castle.
- Cerastium arvense*. Bank a little beyond Portland-place; near Cluden new bridge.
- Cerasus avium*. Bank nr. Lincluden abbey
- *Padus*. Pretty general in the northern parts of the district.
- Cheiranthus Cheiri*. Walls of Lincluden and Sweetheart abbeys; plentiful on the latter.
- Circæa Lutetiana*. Glen.
- Drosera anglica & longifolia*. Lochar-moss
- Epipactis latifolia*. Mavis-grove wood.
- Eriophorum pubescens*. Maxwelton loch.
- Festuca bromoides*. Fields, dykes & roadsides, common.
- Gagea lutea*. Hazel-copse nr. Grove, abt.

- Galium boreale*. Bank of Nith in sev. pl.
Genista anglica. Terregles woods.
 — *tinctoria*. Dalscairth hills.
Gentiana campestris. Dalscairth hills;
 Glen.
Gymnadenia albida. Dalscairth hills, pl.
 — *conopsea*. Dalscairth hills;
 Maxwelton loch.
Habenaria chlorantha. Maxwelton loch
 and Terregles woods.
 — *viridis*. Dalscairth hills, spar.
Hippuris vulgaris. Lochar-moss.
Hypericum hirsutum. Glen.
Jasione montana. Not uncommon.
Lathræa squamaria. Hazel-copse near
 Grove, but very sparingly.
Lepidium Smithii. Road-sides and on
 light soils, very common.
Linaria vulgaris, var. *Peloria*. Hedge nr.
 Kelton.
Littorella lacustris. Margin of the Clu-
 den, above Lincluden abbey.
Lobelia Dortmanna. Loch Kinder, abun-
 dant; less so in Loch Lotus.
Lycopus europæus. About Maxwelton loch
Lysimachia vulgaris. About Maxwelton
 Loch, sparingly.
Lythrum Salicaria. Not uncommon.
Malva moschata. Banks of the Nith.
Melica uniflora. Glen; Mavis-grove wd.
Meum Athamanticum. Banks of the Clu-
 den, above Routing bridge.
Milium effusum. Cluden craigs; Mavis-
 grove woods, &c.
Molinia cærulea. About Maxwelton loch.
Myosotis repens. Boggy ground nr. Max-
 welton loch.
Myrica Gale. Abundant and luxuriant
 in Terregles woods; Maxwelton lo.
Nasturtium terrestre. Upon the quay at
 Dumfries.
Nuphar lutea. In the river Lochar.
Ornithopus perpusillus. About Maxwelton
 loch, and several other localities,
 abundant.
Orobanche major. Harleybank; Craigs;
 Cluden craigs.
Parnassia palustris. Abt. Maxwelton loch
Phalaris canariensis. Cultivated ground.
Poa aquatica. Moat of Carlaverock-castle
 — *maritima*. Shores of the Solway nr.
 Carlaverock-castle.
Polemonium cæruleum. Catton's loaning.
Polygonum Bistorta. Banks of Nith op-
 posite Dumfries; Cluden craigs.
Pyrola media. Dalscairth hills.
Ranunculus Lingua. Lochar-moss; Ma-
 bie-moss.
Ribes Grossularia. Not uncommon.
 — *nigrum*. Banks of the Nith, about
 a quarter of a mile below Ellisland.
 — *rubrum*. Cluden-craigs; banks of
 Cluden above Routing-bridge
Rottbollia incurvata. Shores of the Solway
Rubus saxatilis. Dalscairth woods.
Sanguisorba officinalis. Field near Ma-
 bie-moss; near Kelton.
Samolus Valerandi. Maxwelton loch;
 ditch near Kingholm-quay; Nith
 below Glencaple.
Sambucus Ebulus. Fields near Nether-
 wood, and below the Dumfries ob-
 servatory.
Saxifraga granulata. Banks of Nith and
 Cluden.
Scirpus pauciflorus. Lochar-moss; about
 Maxwelton loch.
Sedum anglicum. Road-sides near Port-
 land-place and Dalscone; hills near
 Shambelly wood; abundant.
Silene maritima. Beach below Glencable.
Solanum Dulcamara. Plantation near
 Kingholm-quay; near Lincluden-
 abbey.
Sparganium simplex. Maxwelton loch,
Statice Limonium. Shores of the Solway
 at Burran-point.
Stellaria glauca. Maxwelton loch.
 — *nemorum*. Bank near Lincluden
 abbey; Cluden craigs.
Symphytum officinale. Banks of Nith nr.
 Albany-place.
Triodia decumbens. Maxwelton loch.
Trollius europæus. Glen: Routing-bridge,
 abundant.
Vaccinium Myrtillus. Dalscairth, Sham-

- belly, and Terregles woods, &c. common.
- Vaccinium Oxycoccus*. Terregles wood; Lochar-moss.
- Utricularia minor* and *vulgaris*. Lochar-moss.
- Valeriana pyrenaica*. Banks of the Cluden in several places; plentiful about Routing bridge.
- Veronica Anagallis*. Growing luxuriantly in a ditch near Dalscairth.
- *Buxbaumii*. Near Rosehall.
- *montana*. Mavis-grove wood; glen above Irongray manse.
- Viburnum Opulus*. Mavis-grove wood; Glen.
- Viola palustris*. Plantation nr. Lincluden.
- Allosorus crispus*. Near Carsethorn; road-side near craigs.
- Botrychium Lunaria*. Glen.
- Cystopteris fragilis*. Cluden craigs.
- Lycopodium alpinum*. Dalscairth hills.
- *clavatum*. Dalscairth hills; Lochar-moss.
- *selaginoides*. Criffel; Dalscairth hills.
- *Selago*. Abundant on the summit of Criffel; sparingly on Dalscairth hills.
- Polypodium Dryopteris*. Cluden craigs; Dalscairth woods.
- *Phegopteris*. Road-side near Mabie; Dalscairth woods.
- Scolopendrium vulgare*. Cluden craigs, abundant; Glen. In the latter state the fronds are, almost without exception, irregular.

PETER GRAY.

Dumfries, November 12, 1842.

ART. CIII. — *Some Account of the Botanical Collections recently made by Dr. Theodore Kotschy (for the Wurtemberg Botanical Union) in Nubia and Cordofan.* Communicated by MR. WM. PAMPLIN, jun.

(Continued from p. 390)

THIRD, in the province BERBER, the city Chartum and the village Gubba, the island Tutti near Chartum; the villages Abu Haschim, Abu Hamed, with the island Mograd and Kalebsche, and the great desert of Berber. It is therefore evident that our traveller made best use of the short space of time allotted to him, in extending his excursions as much as possible through a great variety of locality, namely, mountains, hills, plains, lakes, river-sides &c., circumstances however prevented him in a great measure from taking the altitudes and noting other particulars of the mountainous districts.

In the third place, a conspectus of the natural orders and number of species in each family of which the collection consists, is here given, namely: —

ORDERS. SPECIES.	ORDERS. SPECIES.	ORDERS. SPECIES.
Marsileaceæ ... 1	Brought up...93	Brought up...270
Alismaceæ 3	Compositæ28	Cassiæ16
Hydrocharideæ 4	Portulacaceæ... 12	Mimoseæ..... 5
Gramineæ48	Cucurbitaceæ ...10	Corniculatæ ... 2
Cyperoideæ15	Labiataæ 9	Aizoideæ.....14
Commelinaceæ 2	Asperifoliaceæ...12	Rosaceæ 1
Juncaceæ 1	Convolvulaceæ 18	Onagraceæ 5
Palmæ 1	Polygalaceæ ... 3	Lythrarieæ 7
Coronarieæ 1	Personatæ30	Tetradynamæ ... 6
Characeæ..... 1	Solanaceæ 7	Capparideæ..... 6
Amentaceæ 1	Lysimachiaceæ 2	Violaceæ 1
Urticaceæ 1	Asclepiadeæ ... 3	Rutaceæ24
Nyctagineæ..... 3	Contortæ 1	Sapindaceæ..... 4
Aristolochiæ ... 1	Sapotaceæ 1	Malvaceæ20
Laurineæ..... 1	Umbelliferaæ ... 1	Geraniaceæ 4
Plumbagineæ ... 1	Terebinthaceæ... 1	Theaceæ 1
Rubiaceæ 8	Papilionaceæ ...39	Tiliaceæ 7
—	270	—
93		Total Species, 393

From the above enumeration it appears that the Gramineæ and Cyperaceæ amount to 62 species; the Papilionaceæ to 39; the Personatæ to 30; the Compositæ to 27; the Rutaceæ to 24; and the Malvaceæ to 20.

W. PAMPLIN JUN.

(To be continued).

ART. CIV.—Notice of ‘*The Botanical Looker-Out among the Wild Flowers of the Fields, Woods and Mountains of England and Wales.*’ By EDWIN LEES, F.L.S., &c. London: Tilt & Bogue, Fleet Street. H. Davies, Cheltenham. 1842.

WE have already given a few extracts from this work (Phytol. 301), and as our limits are very circumscribed, we cannot now do better than allow the author himself to explain the design and scope of the book before us.

“I WILL admit *in limine* that I am not here writing to instruct the professional student of Botany. Neither do I aim to surprise my brother botanists by any new arrangements in classification or discoveries in physiology. But if I take a humbler rank than the dignity of science may seem to warrant, and thus make no advances in their estimation, still I hope I may be in some degree *useful* in attracting the *many* to the pleasures afforded by an examination of plants in their wild localities, and thus, indirectly at least, subserve the cause of Natural History, by enlisting recruits, whose enthusiasm may perchance be awakened by my incitations to observation and adventure.

“In my experience as a practical collecting botanist for some years, I have inva-

riably found that however my botanical friends might take fire at the exhibition of my specimens or the mention of their habitats, that the uninitiated in these things were unable to comprehend the sources of my pleasure, and could not understand on what principle I could experience delight in making long journeys, and taking fatiguing rambles, merely in search of plants. * * *

The neglect of physical and mental enjoyment lying within the reach of almost every body, appears to me to arise from a false supposition that the toils attendant upon the study of Botany would greatly counterbalance any pleasure to be derived from it. In these papers, then, I aim to show how incorrect such a conclusion is;—and, in monthly order, my object has been to produce delineations which, even to the general eye of those unfamiliar with botanical terms, shall offer charms which may tempt the leisure of those who desire a pleasing and instructive occupation; while I have introduced *incident* to show that the botanist, during his rambles, may still look out with all the gusto of a traveller superadded to his scientific examinations—while the stores of his collecting-book will make “a wet day at an inn” very different from “the wet day” so graphically described by Washington Irving.”

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“Treating the subject thus lightly, I may hope to attract some whose attention would shrink from the study of more laboured treatises—and the ardent enquirer, if he accompanies me for *excitement*, will find abundant works before the public, where the sparks here kindled, may contribute fuel to the continuation and duration of the scientific flame he desires to nourish with increasing and perennial vigour. Even the proficient in botanical study may not be displeased with the allusions made to the habitats of some of his favourites; since as iron sharpeneth iron, so is enterprise awakened by the narration of the humblest pilgrim to the shrine that is the object of the reverence of his fraternity.”—Preface.

Were we disposed to be critical, we might perchance quarrel a little with the author’s style, and say that it is, in some places, rather too sentimental; but this, if it be a fault at all, is one into which a writer may readily fall, if, when he treats of flowers, they suggest to his mind other ideas than such as relate simply to their utility or scientific arrangement. However, “take it for all in all,” we hail the ‘Botanical Looker-Out’ as a very agreeable contribution to our stock of popular works on Botany.

ART. CV.—*Varieties.*

227. *A Catalogue of Plants found growing in the neighbourhood of Wrexham, in Denbighshire.*

Veronica serpyllifolia	Veronica Chamædrys	Circæa Lutetiana
scutellata	hederifolia	Anthoxanthum odoratum
Anagallis	agrestis	Valeriana rubra
Beccabunga	arvensis	dioica
officinalis	Pinguicula vulgaris	officinalis
montana	Lycopus europæus	Fedia olitoria

<i>Fedia dentata</i>	<i>Bromus sterilis</i>	<i>Myosotis</i>
<i>carinata</i>	<i>secalinus</i>	<i>cæspitosa</i>
<i>Iris Pseud-acorus</i>	<i>mollis</i>	<i>versicolor</i>
<i>Rhynchospora alba</i>	<i>Avena fatua</i>	<i>Cynoglossum officinale</i>
<i>Scirpus lacustris</i>	<i>strigosa</i>	<i>Anagallis arvensis</i>
<i>setaceus</i>	<i>pubescens</i>	<i>tenella</i>
<i>sylvaticus</i>	<i>flavescens</i>	<i>Lysimachia nemorum</i>
<i>Eleocharis palustris</i>	<i>Arundo Phragmites</i>	<i>Nummularia</i>
<i>multicaulis</i>	<i>Triticum caninum</i>	<i>Primula vulgaris</i>
<i>Eriophorum vaginatum</i>	<i>repens</i>	<i>veris</i>
<i>angustifolium</i>	<i>Brachypodium sylvaticum</i>	<i>elatior</i>
<i>Nardus stricta</i>	<i>pinnatum</i>	<i>Hottonia palustris</i>
<i>Alopecurus pratensis</i>	<i>Lolium perenne</i>	<i>Menyanthes trifoliata</i>
<i>geniculatus</i>	<i>temulentum</i>	<i>Erythræa Centaurium</i>
<i>fulvus</i>	<i>Montia fontana</i>	<i>Datura Stramonium</i>
<i>Phalaris arundinacea</i>	<i>Dipsacus pilosus</i>	<i>Atropa Belladonna</i>
<i>Phleum pratense</i>	<i>sylvestris</i>	<i>Solanum Dulcamara</i>
<i>Milium effusum</i>	<i>Knautia arvensis</i>	<i>nigrum</i>
<i>Agrostis canina</i>	<i>Scabiosa succisa</i>	<i>Verbascum Thapsus</i>
<i>vulgaris</i>	<i>columbaria</i>	<i>Lychnitis (abundnt.)</i>
<i>alba</i>	<i>Galium verum</i>	<i>thapsiforme</i>
<i>Catabrosa aquatica</i>	<i>cruciatum</i>	<i>virgatum</i>
<i>Aira cæspitosa</i>	<i>palustre</i>	<i>Convolvulus arvensis</i>
<i>flexuosa</i>	<i>saxatile</i>	<i>sepium</i>
<i>caryophyllea</i>	<i>Aparine</i>	<i>Vinca major, (doubtfully</i>
<i>præcox</i>	<i>Asperula odorata</i>	<i>wild)</i>
<i>Melica uniflora</i>	<i>Sherardia arvensis</i>	<i>minor, (ditto).</i>
<i>cærulea</i>	<i>Plantago major</i>	<i>Jasione montana</i>
<i>Holcus mollis</i>	<i>lanceolata</i>	<i>Campanula rotundifolia</i>
<i>lanatus</i>	<i>Coronopus</i>	<i>latifolia</i>
<i>Arrhenatherum avenaceum</i>	<i>Cornus sanguinea</i>	<i>rapunculoides</i>
<i>Poa aquatica</i>	<i>Alchemilla vulgaris</i>	<i>Trachelium</i>
<i>fluitans</i>	<i>arvensis</i>	<i>Lonicera Periclymenum</i>
<i>rigida</i>	<i>Potamogeton gramineus</i>	<i>Rhamnus catharticus</i>
<i>trivialis</i>	<i>crispus</i>	<i>Euonymus europæus</i>
<i>pratensis</i>	<i>perfoliatus</i>	<i>Viola hirta</i>
<i>annua</i>	<i>rufescens</i>	<i>odorata</i>
<i>Triodia decumbens</i>	<i>natans</i>	<i>palustris</i>
<i>Briza media</i>	<i>Sagina procumbens</i>	<i>canina</i>
<i>Dactylis glomerata</i>	<i>apetela</i>	<i>tricolor</i>
<i>Cynosurus cristatus</i>	<i>Echium vulgare</i>	<i>lutea</i>
<i>Festuca ovina</i>	<i>Lithospermum arvense</i>	<i>Hydrocotyle vulgaris</i>
<i>bromoides</i>	<i>officinale</i>	<i>Sanicula europæa</i>
<i>myurus</i>	<i>purpureo-cæruleum,</i>	<i>Helosciadium nodiflorum</i>
<i>loliacea</i>	<i>(Denbigh)</i>	<i>inundatum</i>
<i>pratensis</i>	<i>Symphytum officinale</i>	<i>Sison Amomum</i>
<i>Bromus giganteus</i>	<i>Lycopsis arvensis</i>	<i>Ægopodium Podagraria</i>
<i>asper</i>	<i>Myosotis arvensis</i>	<i>Bunium flexuosum</i>

Pimpinella Saxifraga	Luzula campestris	Cotyledon Umbilicus
Sium angustifolium	Rumex Hydrolapathum	Sedum Telephium
Ænanthe fistulosa	crispus	anglicum
peucedanifolia	sanguineus, α . and β .	acre
crocata	acutus	Oxalis Acetosella
Phellandrium	obtusifolius	Agrostemma Githago
Æthusa Cynapium	Acetosa	Lychnis Flos-cuculi
Fœniculum vulgare	Acetosella	dioica
Angelica sylvestris	Triglochin palustre	Cerastium vulgatum
Heracleum Sphondylium	Alisma Plantago	viscosum
Daucus Carota	Chlora perfoliata	aquaticum
Torilis Anthriscus	Erica Tetralix	Spergula arvensis
nodosa	cinerea	Lythrum Salicaria
Scandix Pecten	Calluna vulgaris	Agrimonia Eupatoria
Anthriscus sylvestris	Vaccinium Myrtillus	Reseda Luteola
vulgaris	Vitis-Idea	Sempervivum tectorum
Chærophyllum temulentum	Oxycoccus	Prunus spinosa
Myrrhis odorata	Epilobium angustifolium	Padus
Conium maculatum [cus	hirsutum	Cerasus
Chenopodium Bonus-Henri-	parviflorum	Cratægus Oxyacantha
hybridum ?	montanum	Pyrus Malus
album	tetragonum	aucuparia
Viburnum Opulus	palustre	Spiræa Ulmaria
Sambucus Ebulus	Daphne Laureola	Rosa spinosissima
nigra	Polygonum Bistorta	villosa
Parnassia palustris	aviculare	tomentosa
Linum catharticum	Fagopyrum	canina
Drosera rotundifolia	Convolvulus	systyla
Berberis vulgaris	amphibium	arvensis
Peplis Portula	Persicaria	Rubus Idæus
Galanthus nivalis	lapathifolium	suberectus
Narcissus Pseudo-narcissus	Hydropiper	fruticosus
Convallaria majalis	Paris quadrifolia	saxatilis
Allium ursinum	Adoxa Moschatellina	Fragaria vesca
vineale	Scleranthus annuus [lium	elatior
Ornithogalum nutans	Chrysosplenium alternifo-	Comarum palustre
Hyacinthus non-scriptus	oppositifolium	Potentilla anserina
Narthecium ossifragum	Saxifraga granulata	Fragariastrum
Juncus glaucus	tridactylites	Tormentilla officinalis
effusus	Saponaria officinalis	reptans
conglomeratus	Silene inflata	Geum urbanum
acutiflorus	Stellaria media	rivale
lampocarpus	holostea	Papaver Argemone
uliginosus	graminea	dubium
bufonius	uliginosa	Rhœas
squarrosus	Arenaria trinervis	Meconopsis Cambrica
Luzula sylvatica	serpyllifolia	Chelidonium majus
pilosa	rubra	Helianthemum vulgare

<i>Tilia europæa</i>	<i>Melampyrum pratense</i>	<i>Ulex europæus</i>
<i>Helleborus viridis</i>	<i>Lathræa squamaria</i>	<i>Genista tinctoria</i>
<i>Aquilegia vulgaris</i>	<i>Pedicularis palustris</i>	<i>Cytisus Scoparius</i>
<i>Stratiotes aloides</i>	sylvatica	<i>Ononis arvensis</i>
<i>Thalictrum minus</i>	<i>Antirrhinum majus</i>	<i>Anthyllis Vulneraria</i>
<i>Clematis Vitalba</i>	<i>Linaria Cymbalaria</i>	<i>Orobus tuberosus</i>
<i>Anemone nemorosa</i>	Elatine	<i>Lathyrus Nissolia</i>
<i>Ranunculus aquatilis</i>	vulgaris	pratensis
hederaceus	<i>Scrophularia nodosa</i>	sylvestris
Flammula	<i>Digitalis purpurea</i>	<i>Vicia sylvatica</i>
Ficaria	<i>Verbena officinalis</i>	Cracca
auricomus	<i>Coronopus Ruellii</i>	sativa
sceleratus	<i>Capsella Bursa-pastoris</i>	angustifolia
acris	<i>Lepidium campestre</i>	sepium
repens	Smithii	Bithynica
bulbosus	<i>Draba verna</i>	<i>Ervum hirsutum</i>
arvensis	<i>Cardamine amara</i>	<i>Astragalus glycyphyllos</i>
parviflorus	pratensis	<i>Ornithopus perpusillus</i>
<i>Trollius europæus</i>	impatiens	<i>Melilotus officinalis</i>
<i>Caltha palustris</i>	hirsuta	<i>Trifolium repens</i>
<i>Mentha sylvestris</i>	<i>Arabis hirsuta</i>	pratense
hirsuta	<i>Barbarea vulgaris</i>	arvense
gentilis	<i>Nasturtium officinale</i>	striatum
arvensis	terrestre	procumbens
<i>Thymus Serpyllum</i>	<i>Sisymbrium officinale</i>	filiforme
<i>Origanum vulgare</i>	Sophia	<i>Lotus corniculatus</i>
<i>Teucrium Scorodonia</i>	Thalianum	major
<i>Ajuga reptans</i>	<i>Erysimum Alliaria</i>	<i>Medicago sativa</i>
<i>Ballota nigra</i>	<i>Cheiranthus Cheiri</i>	lupulina
<i>Galeobdolon luteum</i>	<i>Brassica Napus</i>	maculata
<i>Galeopsis Tetrakit</i>	Rapa	<i>Hypericum Androsæum</i>
versicolor	<i>Sinapis arvensis</i>	quadrangulum
<i>Lamium album</i>	nigra	perforatum
purpureum	<i>Raphanus Raphanistrum</i>	humifusum
<i>Betonica officinalis</i>	<i>Erodium cicutarium</i>	montanum
<i>Stachys sylvatica</i>	<i>Geranium pratense</i>	hirsutum
ambigua	lucidum	pulchrum
palustris	molle	elodes
arvensis	robertianum	<i>Tragopogon pratensis</i>
<i>Nepeta Cataria</i>	dissectum	<i>Helminthia echioides</i>
<i>Glechoma hederacea</i>	columbinum	<i>Sonchus arvensis</i>
<i>Acinos vulgaris</i>	<i>Malva sylvestris</i>	oleraceus
<i>Calamintha officinalis</i>	rotundifolia	<i>Prenanthes muralis</i>
<i>Clinopodium vulgare</i>	moschata	<i>Leontodon Taraxacum</i>
<i>Prunella vulgaris</i>	<i>Corydalis claviculata</i>	<i>Apargia hispida</i>
<i>Bartsia Odontites</i>	<i>Fumaria capreolata</i>	<i>Hieracium Pilosella</i>
<i>Euphrasia officinalis</i>	officinalis	Lawsoni ?
<i>Rhinanthus Crista-galli</i>	<i>Polygala vulgaris</i>	murorum

<i>Hieracium sylvaticum</i>	<i>Centaurea Scabiosa</i>	<i>Carex hirta</i>
<i>paludosum</i>	<i>Orchis mascula</i>	<i>Alnus glutinosa</i>
<i>sabaudum</i>	<i>Morio</i>	<i>Urtica urens</i>
<i>umbellatum</i>	<i>pyramidalis</i>	<i>dioica</i>
<i>Crepis virens</i>	<i>latifolia</i>	<i>Bryonia dioica</i>
<i>Hypochaeris radicata</i>	<i>maculata</i>	<i>Myriophyllum verticillatum</i>
<i>Lapsana communis</i>	<i>Gymnadenia conopsea</i>	<i>Sagittaria sagittifolia</i>
<i>Cichorium Intybus</i>	<i>Habenaria viridis</i>	<i>Arum maculatum</i>
<i>Aretium Lappa</i>	<i>bifolia</i>	<i>Poterium Sanguisorba</i>
<i>Carduus nutans</i>	<i>Ophrys apifera</i>	<i>Empetrum nigrum</i>
<i>Cnicus lanceolatus</i>	<i>Listera ovata</i>	<i>Ruscus aculeatus</i>
<i>palustris</i>	<i>Nidus-avis</i>	<i>Viscum album</i>
<i>pratensis</i>	<i>Epipactis latifolia</i>	<i>Humulus Lupulus</i>
<i>Carlina vulgaris</i>	<i>palustris</i>	<i>Tamus communis</i>
<i>Bidens cernua</i>	<i>Euphorbia helioscopia</i>	<i>Mercurialis perennis</i>
<i>Eupatorium cannabinum</i>	<i>exigua</i>	<i>Taxus baccata</i> (wild)
<i>Tanacetum vulgare</i>	<i>Peplus</i>	<i>Atriplex angustifolia</i>
<i>Artemisia Absinthium</i>	<i>Callitriche verna</i>	<i>Ceterach officinarum</i>
<i>vulgaris</i>	<i>Zannichellia palustris</i>	<i>Polypodium vulgare</i>
<i>Gnaphalium germanicum</i>	<i>Typha latifolia</i>	<i>Phegopteris</i>
<i>uliginosum</i>	<i>angustifolia</i>	<i>Dryopteris</i>
<i>Conyza squarrosa</i>	<i>Sparganium ramosum</i>	<i>Polystichum lobatum</i>
<i>Tussilago Farfara</i>	<i>simplex</i>	<i>angulare</i>
<i>Petasites vulgaris</i>	<i>Carex pulicaris</i>	<i>Lastræa Oreopteris</i>
<i>Senecio vulgaris</i>	<i>vulpina</i>	<i>Filix-mas</i>
<i>sylvaticus</i>	<i>paniculata</i>	<i>dilatata</i>
<i>tenuifolius</i>	<i>stellulata</i>	<i>Cystopteris fragilis</i>
<i>Jacobæa</i>	<i>ovalis</i>	<i>Asplenium Trichomanes</i>
<i>aquaticus</i>	<i>remota</i>	<i>Ruta-muraria</i>
<i>saracenicus</i>	<i>pendula</i>	<i>Adiantum-nigrum</i>
<i>Solidago Virgaurea</i>	<i>sylvatica</i>	<i>Athyrium Filix-fœmina</i>
<i>Pulicaria dysenterica</i>	<i>Pseudo-Cyperus</i>	<i>Scolopendrium vulgare</i>
<i>Bellis perennis</i> [mum	<i>Æderi</i>	<i>Pteris Aquilina</i>
<i>Chrysanthemum Leucanthemum</i>	<i>binervis</i>	<i>Lomaria Spicant</i>
<i>segetum</i>	<i>præcox</i>	<i>Osmunda regalis</i>
<i>Pyrethrum Parthenium</i>	<i>panicea</i>	<i>Botrychium Lunaria</i>
<i>inodorum</i>	<i>recurva</i>	<i>Ophioglossum vulgatum</i>
<i>Matricaria Chamomilla</i>	<i>cæspitosa</i>	<i>Equisetum fluviatile</i>
<i>Anthemis arvensis</i>	<i>stricta</i>	<i>arvense</i>
<i>Achillæa Ptarmica</i>	<i>acuta</i>	<i>sylvaticum</i>
<i>Millefolium</i>	<i>paludosa</i>	<i>limosum</i>
<i>Centaurea nigra</i>	<i>vesicaria</i>	<i>palustre</i>
<i>Cyanus</i>	<i>ampullacea</i>	<i>hyemale</i>

—John Rowland; Queen St., Wrexham, July 9, 1842.

228. Note on *Bryum pyriforme*, (Phytol. 398). In the 'Muscologia Britannica' of Hooker and Taylor, it is stated that this moss "is remarkable in the shape of its leaves, of which the upper ones are the longest and most flexuose. They are composed, moreover, except at the very base, almost wholly of nerve; there being only a

narrow membranous margin, which, *towards the extremities*, is deeply serrated." These remarks apply only to the perichæatial leaves (for the others are without serratures), and the term "deeply serrated" is somewhat too strong, even when thus limited. I have no doubt whatever that the same meaning was intended to be conveyed in the 'British Flora;' but that through an error of the transcriber (in the attempt perhaps to abbreviate the passage) the language there used has a quite different import. I have examined all the specimens in the herbarium of the author, and can therefore assure Mr. Gibson that two species have not been confounded under this name. *Bryum pyriforme* is indeed a peculiar species; the moss most resembling it is *B. gracile* (*Wilson*). In a barren state it has considerable affinity with *Phascum alternifolium* of Schwægrichen; but when in fruit, I know of no moss, whether British or foreign, which is likely to be mistaken for it. It is moreover one of the very few mosses which produce "anthers and pistils" within the same envelope; a circumstance which has not escaped the notice of Bruch and Schimper in their elaborate 'Bryologia Europæa.' In case this work should not be in Mr. Gibson's possession, I may mention that several new species, allied to *B. cæspititium*, have been introduced into it; and it may be worth while for those who have the opportunity, carefully to examine and compare such mosses as generally pass for *B. capillare*, *B. turbinatum* &c., in their various aspects and localities, with a view to ascertain the validity of the distinctions insisted upon in that work.—*W. Wilson; Warrington; November 7, 1842.*

[The following note may be interesting to some of our readers; it is in reply to an enquiry respecting the beautiful *Hierochloë borealis*.—*Ed.*]

229. *Note on Hierochloë borealis.* I fear it will be a very difficult matter to get a British specimen of *Hierochloë borealis*; and I think I run no risk of contradiction when I say there is not a *living* botanist who has gathered it. For several years when residing in Angus-shire (my native county), my attention was directed to its discovery, but without success. The locality given in Hooker's 'British Flora,'—"a narrow mountain valley called *Kella*, in Angus-shire," I was never able to find. There is, about three miles from Arbroath, a place called Kelly-glen, that is a narrow valley but not a mountain one; neither do I think the plant in question is to be found there, at any rate I was never so fortunate as to find it, nor have Professors Graham and Balfour, nor any of the numerous parties which almost annually proceed from Edinburgh to the mountains of Angus-shire, ever met with it.—*James Cruickshank; Crichton Institution, Dumfries, November 7, 1842.*

230. *Potentilla tridentata.* There are several others of the late Mr. G. Don's discoveries which have never been found except by himself, such as *Potentilla tridentata*; of which very rare plant I possess an original specimen, given me by Mr. James Reid, gardener to Sir James Carnegie, of Southesk. There is no locality attached to the specimen; and Mr. Reid informed me that although an intimate friend of Mr. Don, he knew the localities of very few of his rare plants.—*Id.*

231. *Phascum axillare and patens.* About a fortnight since I found *Phascum axillare* in fruit, in great profusion, on the bank of a newly made ditch near the Reigate station of the Dover Railway, where the soil is particularly light. It appeared to me so very early for the fruiting of this moss (March being the time given in Hooker's Flora) that I thought the fact worth recording. The axillary capsule renders this species particularly interesting, and indeed I think it the most beautiful of our *Phascea*. At the same time I found *Phascum patens* in fruit: this was also growing on the side of a newly made ditch, near the above-named spot, the soil a stiff clay; it was by no

means plentiful. This very minute but interesting moss differs very widely from the other species of the genus, in its patent serrated leaves, which are beautifully reticulated, with the nerve disappearing below the point. I shall be glad to supply any of your correspondents with specimens—of the former species more particularly, until my stock shall have become exhausted.—*Wm. Hanson; Reigate, November 7, 1842.*

232. *Cibotium Baromez*, (Phytol. 63). I must tell you that I again have a fine frond of *Cibotium Baromez*, seven feet long, sparingly in fruit. This is the third time the plant has fruited with us, which is rather singular, as there has been no particular care bestowed upon it; and why should it persist in flowering here and not elsewhere?—*David Cameron; Botanic Garden, Birmingham, November 8, 1842.*

233. *Note on Hypericum perforatum*, β . *angustifolium*, Koch; *H. veronense*, Schrank. As this plant has not been noticed by any British writer, perhaps it will be interesting to some of your readers to know that it has been found this season. On the 6th of July last, in company with my friend Mr. Tatham, I made a short excursion in the immediate neighbourhood of Settle, for the purpose of making myself acquainted with a few of the Carices of that part. At Giggleswick Scar I met with the above *Hypericum*; the plant was plentiful, but as it was only just coming into flower at that time, I did not gather much of it. As Mr. Tatham is on the spot I may perhaps, through his kindness, be able to procure specimens next season. — *Samuel Gibson; Hebden Bridge, November 8, 1842.*

[The receipt of Mr. Gibson's communication reminded us of a specimen of a narrow-leaved *Hypericum*, received in 1839 from Mr. Cameron, of the Birmingham Botanic Garden. It is labelled "*Hypericum perforatum*, var. *microphyllum*? Ludlow: 1839." Not being able to find the letter which accompanied the specimen, we wrote to Birmingham respecting it, and have been favoured with the following reply from Mr. Westcott. Our specimen is much more branched than *Hypericum perforatum* generally is, the branches being nearly erect; the leaves are very narrow, and their edges revolute.—*Ed.*]

234. *Note on the narrow-leaved Hypericum from Ludlow.* The *Hypericum* was first observed by Mr. Cameron and myself, in the year 1839, on the walls of Ludlow Castle, and since that time on many of the walls which surround the Castle. I have also this year found it on the rocks of Whitcliffe, and on the hedge-banks near the Angel-bank, Clee hills. In the year 1839, Mr. Cameron and myself brought roots of it from the walls of the Castle, and on our return they were planted in the Birmingham Botanic Garden, where the plant has continued to flourish, still retaining its character. I have some recollection that we sent you a specimen on our return, under the name of *Hypericum perforatum*, var. *microphyllum*; but on further observation I conceive it to be distinct from that plant in its inflorescence, and as I cannot find that such a variety is described in any author to which I have access, I have called it *H. perforatum*, var. *linearifolium*. The plant is from one foot to a foot and a half high, less branched, and in all its parts much smaller than *Hypericum perforatum*; branches more erect and compact, not diffuse; inflorescence more corymbose than paniculate. —*Fred. Westcott; Violet Place, Spring Street, Edgbaston, November 21, 1842.*

235. *Lapsana pusilla*, Willd. I had the pleasure to meet with this singular and interesting little plant, in considerable abundance, during the late season (1842), in the sandy meadows west of the "Broom fields," on Bexley Heath. I believe it is scarce in some districts; it is not mentioned in either the Faversham, the Yorkshire, the Manchester, or any other local Flora to which I have referred, nor do I remember

to have observed it in any station so near the metropolis as the one just given. — *Edward Edwards*; *Bexley Heath, Kent, November 12, 1842.*

236. *Cyperus fuscus*, L. It may be interesting to the readers of 'The Phytologist' to be informed that this exceedingly scarce species still exists in its only recorded British locality, where it was first noticed by the late Mr. Haworth, namely, Eel-brook meadow, a marshy pasture situate between Walham Green and Parson's Green, beyond Little Chelsea, Middlesex. On a visit to the spot in September, 1841, I was so fortunate as to obtain several good specimens, although it required some patience and diligence in order to detect them, the entire plant being of inconspicuous appearance, and only a few inches in height.—*Id.*

237. *Note on Pyrola uniflora*, L. I am not aware if any of our hand-books mention that this species seems to possess a similar property with that appertaining to our three *Droseras*, as observed by Sir W. J. Hooker and Mr. Wilson, (*Brit. Flora*, 132, 4th ed.) At least, judging from specimens in my own possession, labelled as having been collected in the woods at Scone, Perthshire, by Mr. W. Gardiner, jun. of Dundee, the single-flowered winter-green, like the British species of *Drosera*, retains the property of staining the paper that lies next to it in the herbarium, of a deep rusty rose colour, so that the form of the plant is distinctly represented through to the back of the sheet on which it is fastened, and also upon the backs of several others which, at different times, may have lain above it, and this although the specimens are perfectly dry.—*Id.*

[We can confirm our correspondent's observations on this plant; other species of *Pyrola* appear to possess the same property.—*Ed.*]

238. *Habits for Petroselinum segetum*, Koch, and *Carex Pseudo-Cyperus*, L. For the use of the youthful botanists resident in or near the "great metropolis," to whom information of the whereabouts of any of the rarer species is a desideratum, I would mention that of *Petroselinum segetum*. Of this plant I gathered specimens a summer or two ago from Charlton lane, and about the church-yard wall, Charlton, Kent, which, if I mistake not, is an unpublished station for this pretty species. And of the beautiful *Carex Pseudo-Cyperus*, in June, 1842, I noticed several large tufts growing by the margins of some shallow pools, near where excavations for brick-earth were in operation, at the Highgate end of Maiden lane, Holloway, Middlesex, a short distance from the Highgate cemetery.—*Id.*

[*Petroselinum segetum* is not uncommon in some of the marshy ground near London, as between the Thames and the lower road to Deptford, where it sometimes grows to a considerable size.—*Ed.*]

239. *Enquiry respecting Byssus barbata*, Eng. Bot. I enclose you a specimen of a byssoid substance, or fungus, gathered by myself last week from a mass of decaying timber supporting the roof of a drift-way in an iron-mine at Clurewell Meend, Forest of Dean, Gloucestershire, 318 feet below the surface of the ground. When I first saw it in the mine by candle-light, it presented a very beautiful appearance, looking like a golden fleece with every hair glistening with moisture. It extended over a considerable surface of the roof of the drift-way, and on its sides, as far as the decaying timber extended. It no doubt belongs to the old genus *Byssus* of authors, which, having been abolished for sheltering too many outcasts of other genera, our present species has been turned out of doors, and from the glorious uncertainty of modern botanical nomenclature, especially in the fungoid tribes, I do not know where to find it. It certainly appears to me to bear a close resemblance to, if indeed it be not absolutely

identical with, the *Byssus barbata* of 'English Botany,' as drawn by Sowerby; and at p. 181 of Hooker's 'English Flora,' v. pt. ii. Fungi, it is incidentally stated that this *Byssus barbata* of 'English Botany' is *Ozonium auricomum*. No authority however is given for this name, and on turning to the index for *Ozonium*, no such name occurs. Under these circumstances, being dubious as to whether the *Byssus barbata* of Smith and Sowerby is described at all in the cryptogamic volumes of Hooker's 'British Flora,' perhaps some fungological reader of 'The Phytologist' may be able to give some information on the subject, or refer me to a recent volume where the plant is noticed under its present recognised name. I recollect no very late notice of the occurrence of this production in local Floras.—*Edwin Lees; Church-Hill Cottage, Powick, Worcestershire, November 16, 1842.*

240. *Bryum pyriforme*. Under this species the authors of 'Muscologia Britannica' observe—"They (the leaves) are formed, moreover, almost wholly of nerve; there being only a narrow membranous margin, which, *towards the extremity*, is deeply serrated;" (Ed. 1, p. 118). I pointed out to Dr. Taylor, a few months ago, the discrepancy between this and the corresponding remarks in 'English Flora' (quoted by Mr. Gibson), and we agreed that, if not an error of the press, it was to be referred to an inadvertence on the part of the author of the latter work. As to the actual facts, I have assuredly never seen the leaves of *Bryum pyriforme* serrated "at the base:" my Yorkshire specimens show faint serratures near the points of the leaves, but in a specimen now before me, gathered at Blarney, near Cork, since the publication of 'Flora Hibernica,' they are far more distinct. The figure in 'Musc. Brit.' does certainly not represent the leaf "deeply serrated," and yet I cannot doubt that the authors of that work *saw* what they described. Mr. Gibson need not be told (for no one knows better than he) that mosses, as well as other plants, are liable to variation in this respect.—*Richard Spruce; York, November 16, 1842.*

241. *Note on the discovery of Statice tatarica, near Portsmouth*. I beg to communicate to your esteemed periodical the discovery of *Statice tatarica* as a British plant. It has been observed by myself, as well as by Mrs. Robinson of this town, on the shore between Wicker Hard and Cams, on the borders of Portsmouth Harbour: I have also noticed it growing by the side of Fareham Creek, from half a mile to a mile below the town. I was at first undecided to what species to refer it; but on forwarding a specimen to Professor Lindley, he pronounced it to be *S. tatarica*. Its time of flowering is about the same as that of *S. Limonium*; and it is undoubtedly wild in both places.—*Wm. L. Notcutt; Fareham, November 21, 1842.*

ART. CVI. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

This Society held its first meeting for the season on Thursday the 10th instant,—Professor Graham in the chair. James Edward Winterbottom, Esq. M.A., F.L.S. &c. East Woodhay, Newbury, Berks, and Jas. Carter, Esq., M.R.C.S., Petty Cury, Cambridge, were elected non-resident Fellows; and Mr. John Thompson, Crowhall Mill, Ridley, Northumberland, an Associate of the Society. A donation to the library was announced from Thomas Brown, Esq. (per David Stuart, Esq.), and numerous parcels of plants &c. were stated to have been received since last meeting.

Mr. Brand read a paper by Mr. Edmonston, jun., on the Botany of Shetland, and instituted a comparison between the number of genera and species existing in that region, and those which occur in other districts of Scotland.

"The Botany of Shetland," observes Mr. Edmonston, "though not very extensive, is interesting. Many of the less common (chiefly subalpine) plants are abundant in all situations, and many species very commonly distributed, and indeed often marked as *universal* throughout Great Britain, are very rare or altogether unknown in Shetland. Among the last may be mentioned — *Alchemilla arvensis* and *vulgaris*, *Briza media*, *Primula veris*, *Anagallis arvensis*, *Convolvulus arvensis*, *Teucrium Scorodonia*, *Geranium robertianum*, *Lapsana communis* and others of the commonest weeds. Again, *Thalictrum alpinum*, *Blysmus rufus*, and other *local* plants, are everywhere abundant, growing down to the sea level; and sylvan plants — those generally associated with woods or luxuriant pasturage, are almost entirely wanting. The Geology of Shetland is rich in interesting phenomena. The formation is almost wholly primitive—the most abundant rocks being gneiss, mica-schist, clay and chlorite slate, granite, quartz, serpentine, limestone, &c.; besides which there are amygdaloidal porphyritic rocks of different kinds. The difference of formation between Shetland and Orkney is very striking—that of the latter being as uninteresting as the former is the reverse. Orkney consists chiefly of an apparent continuation of the North coast of the Mainland, being composed of sandstone, clay-slate, and other secondary rocks, while the Shetlands may be said to belong to the oceanic series of islands. Again, the difference seems as great between the Shetland and Faroe isles—for in the latter group the rocks are all basaltic. Many of the Shetland rocks present a most remarkable degree of similarity to those of the South of England—chrome ore, native magnesia, serpentine, crystallised fluor, and several others, being common to both extremities of Great Britain, though rarely found in the intermediate space; and it is a singular fact, that some of the plants present a corresponding analogy—as for instance, *Lathyrus maritimus*, &c.

"The prevalence of peat is a very characteristic feature in the general aspect of Shetland, and proves beyond a doubt the great abundance of trees in former ages.—Judging from their remains, these seem chiefly to have belonged to *Corylaceæ* and *Pinnaceæ*, as trunks and nuts of the hazel, and cones of *Abies Picea*, have repeatedly been dug out of the moors. This evidence of their existing formerly in such abundance, leads to the question whether they may still be grown. I certainly do not think that the experiment has been fairly tried, nor is it probable that it soon will be on a scale that can set the matter at rest. Indeed, many reasons seem to concur in rendering it unlikely that trees could be reared so as to render them profitable in an economical point of view. The frosts and cold weather which often occur early in autumn do not leave the plants time to form their buds for hybernation before the old leaves are nipped; and the heat of summer is by no means sufficient (as in most other northern latitudes) to compensate for the shortness of its duration. I do not attach so much importance as has sometimes been done to the influence of the sea-spray, by which, during heavy gales, Shetland is liable to be swept—for these happen generally after the sap has descended, and when therefore the plant is dormant.

I may here mention some experiments which have been carried on by my father for five or six years, in order, if possible, to settle the question. He obtained from Messrs. Lawson, of Edinburgh, all the more generally cultivated trees and shrubs,—North British, North American, and North Asiatic,—and the result has been as follows:—Among the indigenous trees of Scotland, the ash appears to stand as well as

any other, as it puts forth its leaves late and loses them early. Of the scarcely indigenous, or naturalised species, the plane-tree appears to be the hardiest; while the birch and Scotch fir will scarcely live a year. Again, *Pinus montana* and *Æsculus Hippocastanum*, comparatively tender plants, appear to thrive well; and *Pyrus aucuparia*, which is indigenous with us, thrives tolerably in cultivation. Almost all the willows do well;—*Salix Russelliana*, *fragilis*, *cinerea*, *viminialis* and *vitellina*, among the best. The alder is rather too early in putting forth its leaves, but some poplars appear to do well, especially the white Scotch, black Italian and Lombardy, and *Populus nigra* is indigenous. Oak and beech will not thrive at all. Generally speaking, evergreens, whether trees or shrubs, appear not to suit. *Pinus Cembra*, *Abies Picea*, black, white and Norway, have all been repeatedly tried, but seldom languished a year. Even the hardy shrubby evergreens, which are met with indigenous, or in every shrubbery on the mainland, as *Ilex Aquifolium*, *Rhododendron ponticum* and *flavum*, *Viburnum Tinus*, &c., die almost immediately. Among the best thriving evergreen shrubs may be mentioned *Arbutus Uva-ursi*, *Cotoneaster mucronata*, *Hedera Helix*, &c. The latter, indeed, is native, and in some situations thrives remarkably well, as it also does in Orkney.

“The climate of Orkney and Shetland are much alike, but scientific observations have only been recorded of the former. ‘Regarding it,’ Mr. Clouston states, ‘the high latitude of Orkney will no doubt induce many well-informed persons even in Scotland to suppose that our winter is much colder than that of any other country, and it may surprise them when we say that our winter is as warm as that of Glasgow, and several degrees warmer than that of Applegarth in Dumfriesshire, on the very southern border. This is owing to the influence of the surrounding ocean, which elevates the temperature of winter as much as it lowers that of summer. Thus, the temperature of Orkney in May, June and July, is 7 degrees below that of Glasgow during these months; but for the whole year, the mean annual temperature in Orkney is nearly the same as that in Applegarth—both being about 46 degrees, or $3\frac{3}{4}$ below that of Glasgow.’”

Mr. Edmonston goes on to observe, that “the uniformity of temperature in Shetland strikes every one; and a remarkable feature in the climate is the great and almost constant humidity. These causes no doubt have a great influence on the vegetation, for there is not a semblance of arctic, and scarcely (except in a very few instances) of alpine vegetation throughout the whole islands. This is certainly rather what might be expected than otherwise; but there are other anomalies which cannot be altogether referred to climate; and the extreme scantiness of the Flora is remarkable, considering the extent of the islands, and the variety of soil, exposure and situation which they present.”

The flowering plants (including the grasses) hitherto observed in Shetland, extend to 94 genera and 178 species; while those found in the district of Moray amount to 333 genera and 692 species; and even in a range of sixteen miles round Aberdeen, there have been found 287 genera and 562 species; and in a similar extent round Edinburgh, the numbers are 389 genera and 908 species—while the flowering plants of Great Britain extend to 523 genera and 1594 species. The proportion of species to genera is also least in Shetland and Aberdeenshire, being only 2 to 1, whereas in the Edinburgh district it is $2\frac{1}{2}$ to 1; and in Britain generally it is 3 to 1.

The statements in Mr. Edmonston’s paper led to some interesting conversation—in the course of which Professor Graham remarked, as a phenomenon which has not hitherto received a satisfactory solution—the entire destruction or absence of wood in many parts of Scotland where once it evidently abounded, and where the change can-

not apparently have arisen through human instrumentality; and he observed that the investigation of this subject would be attended with great interest, besides being of importance in a national point of view.

Dr. Neill said, that in his opinion the peat mosses of Scotland have generally been formed at an earlier period than is usually supposed — some of them containing trees which do not now exist in the country; and he suggested that means should be taken to ascertain the particular species of which the mosses consist, by taking specimens of wood and seeds, or cones &c. from the successive layers, and duly noting their relative position, with all such circumstances as might tend to establish a correct theory respecting our aboriginal forest vegetation; indeed he had once proposed that a prize should be offered by the Highland Society for the best essay on this subject; but his proposal had not been carried into effect.

Mr. Brand remarked that in this country, as in America, the forests in many places appear to have been destroyed by fire; and he instanced some oak trees in Dalkeith Park, which seem to have been burnt down at an early period, and to have thrown out new trunks from the stumps at a later date.

Mr. Goodsir supposed that the increase of the peat might gradually render the soil unfit for the support of trees; and stated, in reference to a remark made by Professor Graham, on the approach of the alpine plants in Shetland to the sea-edge, that this peculiarity coincided with the elevation of the deep-sea invertebrate animals, to the high-water mark in the same locality.

BOTANICAL SOCIETY OF LONDON.

November 4, 1841. — Hewett Cottrell Watson, Esq., F.L.S., V.P., in the chair. Donations to the library were announced from the American Academy of Sciences, Philadelphia, the Horticultural Society of Berlin, and Mr. S. P. Woodward. British plants had been received from Mr. G. W. Francis, Mr. S. P. Woodward, Mr. D. Stock, Mr. B. D. Wardale, Mr. R. Ranking and Mr. S. Gibson. The Chairman presented a specimen of *Cnicus Forsteri*, which he said corresponded exactly with the cultivated specimen of the same species preserved in Smith's herbarium. The specimen exhibited by Mr. Watson was also a cultivated one; the root having been found near Whitemoor pond, in Surrey, in June, 1841, and flowering specimens of it exhibited before the Society last year.

The wild specimens had from two to four flowers only on each stem; whilst the cultivated specimens had ten or a dozen each. Mr. W. exhibited the specimens for the purpose of pointing out the differences between *Cnicus Forsteri* and *C. pratensis*; branched specimens of the latter species having been in several instances mistaken for the former.

Mr. Robert Ranking, F.L.S., presented a specimen of *Plantago Coronopus*, collected at Hastings, showing the easy and natural transition from a spike to a raceme; also a specimen of *Dactylis glomerata*, in which the glumes were become foliaceous.

The commencement of a paper was read from Mr. George Clarke, of the island of Mahé (communicated by Mr. H. W. Martin), "*On Lodoicea Sechellarum*," which will be concluded at the next meeting, when a copious report will be given.—G.E.D.

THE PHYTOLOGIST.

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ART. CVII. — *Notes on the Baobab Tree, (Adansonia digitata).*

By GEORGE LUXFORD, A.L.S., &c.



THE BAOBAB.

EGYPTIAN SOUR GOURD.

MONKEY'S BREAD.

Baobab, Bauhin, Hist. i. 110.

Adansonia Baobab, Linn. Sp. Plant. 960.

Adansonia digitata, Linn. Syst. Veg. 620.

Group.—SYNCARPOSÆ.

Alliance.—MALVALES.

Natural Order.—STERCULIACEÆ.

Section.—BOMBACEÆ.

Linnæan Class and Order.—MONADELPHIA POLYANDRIA.

HAVING received from a correspondent a copy of the 'Bombay Monthly Times for June, 1842,' which contains some interesting particulars relating to the Baobab-tree of Senegal, as observed in India,

it has occurred to me that a few notes on this "colossus of the vegetable kingdom," even if they contain nothing new, may not be out of place in the pages of 'The Phytologist.'

The Baobab is a native of Senegal and other parts of the western coast of Africa, from the Niger to Benin, "a part of the world," says Adanson, "which has always been justly looked upon as the mother of monsters." This celebrated French naturalist resided in Senegal for about five years, and was probably the first botanist who had the advantage of studying the Baobab in its native country. In 1756 M. Adanson communicated a very full account of this remarkable tree to the Royal Academy of Sciences at Paris; his paper, together with an admirable summary of it, were published in the *Memoires* of the Academy in 1761, and appear to be the chief source whence subsequent writers have derived their knowledge of the Baobab.

A letter from Adanson to Linnæus, written four years after the return of the former from Senegal, and previously to the publication of the memoir mentioned above, contains the characters of his new genus, and several remarks upon it; the following is an extract from this letter, which is printed in the 'Correspondence of Linnæus and other Naturalists,' ii. 467.

" Paris, Oct. 2, 1758.

" Among numerous new observations in natural history which I have formerly communicated to the *Académie des Sciences*, is a complete description of the *Bahobab*, which Bernard de Jussieu has named *Adansonia*, and of which I had long ago given a description before your letter reached me. B. de Jussieu had refrained from sending you this description during my absence, that he might not deprive me of the opportunity of giving you pleasure. I therefore now send the essential parts of the character which you ask for, taken from the *Memoirs* of the Academy intended for publication, or rather from my own Latin manuscripts, according to the plan of your *Genera Plantarum*, as I mean to give them to the public.

" ADANSONIA.

" *Calyx*. Perianth simple, of one leaf, cup-shaped, divided half way down into five revolute segments, deciduous. [Fig. c].

" *Corolla*. Petals five,* nearly orbicular, ribbed, revolute, united by their claws to the stamens and to each other. [Fig. b].

" *Stamina*. Filaments numerous (about 700), united in their lower part into a conical tube, which they crown at the top, spreading horizontally.—[Fig. d.] Anthers kidney-shaped, incumbent.

" *Pistil*. Ovary nearly ovate. Style very long, tubular, variously twisted. Stigmas from 10 to 14, prismatic, shaggy, spreading from the centre.

* In Adanson's figure of the flower, of which fig. *b* at p. 436 is a fac-simile, four petals only are shown; in his separate figure of the corolla there are five petals, which is the normal number.

“*Pericarp.* Capsule oval, very large, woody, not bursting, internally separated into from 10 to 14 cells, filled with dry pulp and with seeds; the partitions membranous and longitudinal. [Page 437.]

“*Seeds* numerous, almost bony, kidney-shaped, lodged in friable pulp.

“Hence you may perceive how much this genus differs from the rest of the mallow tribe. First, by the calyx falling off immediately after flowering; — second, by the number and situation of the filaments at the top of a monadelphous tube; — third, by the number and form of the stigmas; — fourth, by the woody and close capsule, with its pulp and cells; — fifth, the compound fingered leaves; — and sixth, by the tree itself, which of all hitherto discovered is the most prodigious in the size of its trunk and branches, being as it were the stupendous vegetable monster of Africa. This tree is found in the country of Senegal only, from whence its fruit, with that of the *Agilhaid*, is sent every year, as an article of commerce, to Egypt. Some of its seeds having been planted there, in a garden, one or two trees were raised, which appear, from Prosper Alpinus, to have attained no remarkable size, nor perhaps to have flowered, if we may judge by the figure in that author, which in every particular, except the fruit, is erroneous. In the West Indian island of Martinico, a single tree of this kind, already full grown, bearing flowers and fruit, is carefully preserved. It was formerly sown there by the negroes. These and similar remarks are detailed, with my authorities, in the communications to the Parisian Academy.”

In the above extracts allusion is made to the immense size of this tree, which has been spoken of as the largest (or rather the broadest) in the world, a title it well merits, as will be seen from the following description.*

The Baobab has more the appearance of a forest than of a single tree. It is an immense hemispherical mass of foliage, sixty or seventy feet high, and from a hundred and twenty to a hundred and fifty feet in diameter. The main trunk is very short in proportion to its size, being only about ten or twelve feet high; while it is at least twenty-five feet in diameter. Golberry, in his *Travels in Africa*, mentions a Baobab the trunk of which measured upwards of thirty-four feet in diameter, and was about thirty feet high. The branches are of considerable size, and fifty or sixty feet long; the central branch rises perpendicularly, the others spread around it in all directions, the low-

*The Norfolk-Island Pine (called *kauri* by the New Zealanders) occasionally grows to a large size. Mr. Terry, in his lately-published work on New Zealand, mentions an extraordinary individual which grows on the eastern coast, near Mercury Bay, which is the largest in New Zealand. “It is called by the natives the Father of the Kauri. Although almost incredible, it measures seventy-five feet in circumference at its base. The height is unknown, for the surrounding forest is so thick, it is impossible to ascertain it accurately. There is an arm some distance up the tree, which measures six feet in diameter at its junction with the parent trunk.” It is evident that the particular tree here spoken of, far exceeds the average size of the species.



Flowers and leaves of the Baobab.

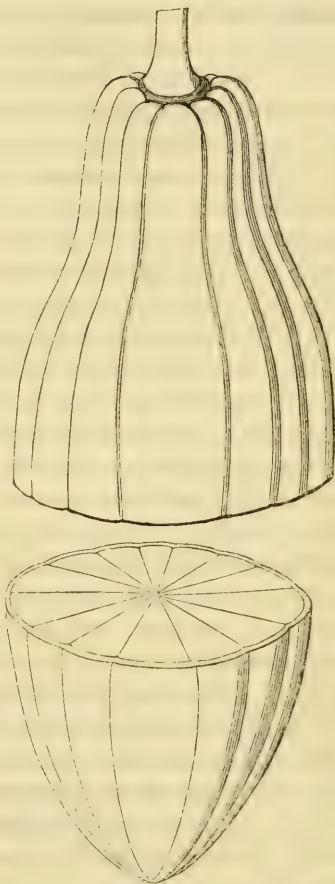
a. Flower-bud before expansion. *b.* Expanded flower. *c.* Section of the calyx. *d.* Section of the stamens.
e, f, g, h, i, Leaves from trees of different ages.

er ones being nearly horizontal for the greater part of their length, while the extremities frequently trail on the ground, from their own weight. The roots are much longer than the branches. The central root descends perpendicularly to a great depth; the lateral ones extend horizontally, and are sometimes but a short distance below the surface of the ground. Adanson saw one of these roots, of which a great portion had been laid bare by the waters of a river; the uncovered part measured about one hundred and ten feet, and judging from its size he considered that forty or fifty feet might be still hidden.

The bark of the trunk and older branches is about nine lines thick, of an ash-grey colour, smooth to the touch, and having a shining appearance, as if varnished; that on the younger branches is greenish and somewhat hairy. The wood is soft, white, and extremely light, being very little heavier than cork. In the *Bombay Monthly Times* are given the results of carbonizing seven different sorts of wood, including that of the *Adansonia*. The weight per cent. of charcoal yielded by each is as follows.—*Adansonia*, 33; *lignum vitæ*, 26·4; mahogany, 25; oak, 22; beech, 19; ash, 17; Scotch fir, 16: so that the lightest wood presents the anomaly of yielding 6·6 per cent. of charcoal more than the heaviest.

The leaves are very similar in general appearance to those of the horse-chesnut, being somewhat orbicular in outline, and divided into several elliptical lobes, which are entire at the margin, and vary in number from three to seven. They are alternate, and supported by a petiole, at the base of which are two small stipules; these are said by Adanson to fall off as soon as the leaves expand; they are, however, represented in his figure. The leaves of very young trees are undivided and nearly sessile; the digitated leaves first make their appearance when the young plant is about a foot high. The figures *e—i*, on the opposite page represent the different forms of the leaves; the lobes of the fully developed leaves (*i*) are from four to six inches long and two or three inches wide.

The flowers of the Baobab, as might be expected from the size of the tree, are very large. The flower-bud (fig. *a*) is globose, and nearly three inches in diameter; when fully expanded the flowers are usually about six inches in diameter. There are generally two or



Fruit of the Baobab.

The lower section shows the arrangement of the carpels.

three of these flowers on a branch, each being suspended by a peduncle which springs from the axil of one of the lower leaves, and bears a few scattered deciduous scales or bracts. The peduncle is a foot long and four lines thick. The handsome white flowers, like those of many allied plants, expand in the morning, about sun-rise, and close towards evening, thus affording an example of what Linnæus terms the sleep of plants. Golberry observes that the negroes assemble round the Baobabs to watch the expansion of their flowers ; and that each flower, as it opens, is saluted with — “ Good morning, beautiful lady ! ” An expanded flower is shown at *b*.

Omitting Adanson’s minute description of the calyx and other parts of the flower, I will pass on to the fruit (p. 437), which is from twelve to eighteen inches long and six inches in diameter, and is suspended by a peduncle two feet long and nearly an inch thick. It is very hard and woody, and is covered with a greenish down. When cut across the fruit is found to be divided into from ten to fourteen cells by membranous dissepiments. The seeds are embedded in a spongy substance, which is whitish in fresh and healthy fruits, and of a reddish hue in those which are badly formed or very old ; as it dries it becomes friable, and separates, either spontaneously or on receiving a very slight blow, into a number of irregular polyhedrons, each of which contains a single seed.

Adanson describes the structure of the seed and its mode of germination, four different stages of which are figured. The cotyledons are at first orbicular, then elliptical ; on the fourth day the first true leaf is developed ; at the end of a month the young tree is about a foot high, and at that time, as before stated, the digitated leaves appear ; during the first summer the tree increases to about five feet in height, and is then about an inch or an inch and a half thick, whilst in France, under the most careful treatment, the author observes that within the latter period it attains no greater height than about twelve inches. A specimen in the botanic garden at Calcutta is said to have attained a circumference of eighteen feet in twenty-six years.

The Baobab comes into leaf in June, flowers in July, matures its fruit in October and November, and in the latter month it loses its leaves. It is very common both in the Island of Senegal and at the Cape de Verd, and along the sea-coast to Sierra Leone, and is even met with at Galam, which is more than a hundred leagues from the sea. M. Golberry says that in the year 1786 he “ saw the greatest number of Baobabs on the isthmus of the peninsula of Cape de Verd, between the bay of Jof and that of Dakar,” a space of nearly two

square leagues, where there were at least sixty trees. The roots penetrate rocky soils with great difficulty, and if ever so slightly injured they decay; this decay is soon communicated to the trunk, where its progress is very rapid and the tree quickly perishes. Hence it thrives best and is most abundant in wet shifting sands, such as those which extend from Senegal to Cape de Verd, a distance of thirty leagues; while at Galam, where the soil is a hard stony clay, it occurs much less frequently and is comparatively small.

Besides a general rottenness or decay arising from injuries received by the root, this tree is occasionally subject to another disease, most probably produced by a fungus somewhat similar to that causing the dry rot, which spreads through the woody portion, and reduces it to the consistence of the pith, without either altering the colour of the wood or changing the disposition of its fibres. The bark also remains uninjured, and there is nothing in the external appearance to indicate the operations of the insidious enemy within. When thus affected the tree is frequently unable to resist the force of the wind; Adanson met with one in an island near Senegal, the trunk of which had been broken asunder in the middle during a gale. The trunk, at the time he saw it, was inhabited by an immense number of very large Coleopterous larvæ. The disease by which the tree was destroyed had most probably made considerable progress before the insects deposited their eggs in the trunk; at all events we know this to be the case with willows and other trees, which are seldom if ever attacked when in a sound and healthy state.

The rapid decay of a fine specimen of this tree, which grew at Colabah in Bombay, is doubtless to be attributed to the same disease.—This tree—one of the finest in western India—was forty-four feet in circumference. In May 1840, it was vigorous and apparently healthy; a few months after that time the large branches began to fall off and the ravages of disease proceeded with great rapidity. On examination the decayed portions were found to be perforated in all directions, like the one seen by Adanson, by the larvæ of a beetle, which were reducing the whole to a powder resembling saw-dust. Both the larva and the perfect insect are figured in the *Bombay Times*. The former is described as being two and a quarter inches long, and three inches in circumference at the thickest part. Some idea of the ravages of these larvæ may be formed from the statement, that a piece of the tree three feet long and eight inches in girth, apparently healthy and sound, was found to be so thoroughly perforated that scarcely two inches of solid wood could be found entire.

We have heard such astounding statements respecting the longevity of this tree, that it would not be right to pass over the subject quite without notice. In the Bombay Monthly Times before referred to, are some interesting notes furnished by the Rev. Dr. Wilson, who remarks that —

“This tree seems to be associated with absurdity among the sages of the West as well as the East. ‘The Baobab-tree of Senegal,’ says Lyell in his ‘Principles of Geology,’ ‘is supposed to exceed almost any other in longevity; Adanson inferred that one which he measured, and found to be thirty feet in diameter, had attained the age of 5150 years. Having made an incision to a certain depth, he first counted three hundred rings of annual growth, and observed what thickness the tree had gained in that period. The average rate of growth of younger trees, of the same species, was then ascertained, and the calculation made according to a supposed mean rate of increase.’ Now, how does the matter stand, with regard to the specimens we have before us in India? Dr. Roxburgh tells us that the tree is an *exotic* in this country — and he is quite correct. It was introduced by the Portuguese from Mozambique within the last three hundred years; and in many instances it has already attained to a growth *exceeding* that specified by Adanson and Lyell. Dr. Lindley has shown that what are called the annular [? annual] rings, are not to be depended upon in calculations as to the age of trees; and that with reference to this very extraordinary species.”—Extracts from Notes of a visit to Dwaraka, by the Rev. Dr. Wilson.

There is no doubt that the Baobab lives to a very great age, as may be inferred from its enormous bulk. Adanson’s observations on some trees which he met with in one of the Magdalen islands, led him to the conclusion that they were growing there at the time of the deluge, consequently that they were, at the time he saw them, upwards of five thousand years old! On these trees were carved some European names, some of which were distinctly dated in the fifteenth and sixteenth centuries, others less distinctly bore date in the fourteenth. Adanson thought it probable that the same trees were seen by Thevet when he passed these islands in 1555, on his voyage to the antarctic regions. The letters of the names were six inches high, and the names themselves occupied a length of about two feet, or somewhat less than the eighth part of the circumference of the trunk. Reasoning from these facts, and from his own observations of the rate of growth of the tree, Adanson arrived at the conclusion above stated, which is most probably an erroneous one. The same trees were seen by Gaberry, thirty-six years after Adanson was on the island; he says that the words of the inscription were Dutch, and that one of the dates was 1449.

When I first read Adanson’s account of the Magdalen-island Baobabs, I could not help suspecting that their size was incorrectly given, a circumference of sixteen or eighteen feet appearing to bear no pro-

portion to the enormous age assigned to them. But on turning to the narrative of his voyage, prefixed to the 'Natural History of Senegal,' p. 66, I find that the diameter of the trees is expressly stated to be six feet. The author says that the names were deeply engraved in the bark, and that each person of the party, except himself, added his mark to those previously on the trees, but that he was satisfied with renewing two of the names which were old enough to be worth the trouble, one of them being dated in the fifteenth the other in the sixteenth century. Then follow the size of the letters, and a brief summary of the same arguments relating to the age of the trees which are afterwards given in detail in the Memoir published by the Academy. But be it observed, that neither in the Narrative nor in the Memoir does Adanson say one word about his having made an incision in the trunk and counted the number of annular layers of wood, in order to determine the age of the tree; his arguments are founded solely on the observed annual rate of increase of young trees in height and diameter, and his data are given by Sir W. J. Hooker, in the 'Botanical Magazine,' 2791-92, where the flower, fruit and leaf are beautifully figured.

The following remarks by a correspondent of the Bombay Monthly Times bear directly on the questions of the age of the tree and of its native country.

"I find you make no mention of the *Adansonia digitata* obtaining great perfection in the ruins of Mandoo and its environs, of which I remember once to have desecanted in our evening conversations; indeed I believe these are the only localities in the upper parts of India, where the 'Khorassan Eemlee' as it is there called, is to be found in great numbers and of enormous girth.

"From Nalcha to the Delhi gate of Mandoo, a distance of six miles along the Vindyah, the road on either side is lined with the ruins of palaces, mosques and tombs, mingled with innumerable groups of the *Adansonia digitata*, the same extending in a long avenue from thence to the Jumna Musjid in the centre of the city, from whence they diverge to the royal parks and gardens.

"The Mahometans fondly treasure this tree as a relic of Moslem sovereignty, believing it to have been brought by the northern conquerors to embellish their imperial residences in the east; and moreover, that it languishes and dies in any Indian soil but that favoured as the abode of royalty. Sooner therefore would they lose an arm than a branch from this boasted tree, although its insidious inroads have done more to complete the ruin of Mandoo, than either the hand of time or Rajpoot bigotry; rooting itself in every crevice of the walls and roofs, and uptearing with its giant arms enormous masses of masonry. * * *

That the tree appears to be one to which the natives of India seem to attach much importance, is evident from both Hindoos and Mussulmen considering it in a sacred character: this probably proceeds from its prodigious size and comparative scarceness, as it is evident the Mahomedans have no claim to its importation from Khorassan, as I am credibly informed by travellers from thence there is scarcely a tree in that region attains a tithe of its size."

Adanson considers the Baobab to be indigenous nowhere but in those places on the western side of Africa which have been mentioned above ; and states that the negroes, wherever they go, are in the habit of carrying with them the seeds of such plants as they make use of in cooking, or for other purposes. He enumerates many of these plants, among which are the Baobab, two kinds of cotton, the tamarind, several sorts of beans, the water-melon, &c., and observes that all these are now found in America, where they have every appearance of being indigenous, although many of them have not received American names. In support of his opinion that the Baobab is a native neither of the American continent nor of any of the West-India islands, he cites the works of Plumier, Sloane and Browne, in which it is not mentioned. He also observes that M. Thiebault de Chanvalon, an inhabitant of Martinique, speaks of a single tree growing on the island, as being the only one he had ever seen in that region. This was a young tree at the time Adanson received his information from M. Thiebault, although it had then, for some years, borne flowers and fruit. Dr. Roxburgh does not consider it to be indigenous in India, where he says it is scarce and of small size, observing that a few only have been found of any size at Allahabad, Masulipatam, on the coast of Coromandel, and in Ceylon. After reading Adanson's remarks on the custom of the negroes in transporting the seeds of the Baobab, it is not difficult to account for its introduction into Asia, and other parts of the world where it is now met with.

As a genus *Adansonia* seems to be chiefly distinguished from *Bombax* (whose habit it has, and to which Linnæus and Cavanilles say it is too nearly allied) by its deciduous calyx, its numerous stamina and its smooth shining seeds, those of *Bombax* being downy or woolly.—Among other and more obvious marks of agreement with other genera of the alliance *Malvales*, such as the extreme lightness of its wood, the large and handsome flowers, &c., may be mentioned that of the pollen grains being round and covered with minute points, as in our common Mallows. From the position of the Baobab in the system, we should expect to find its properties similar to those of its natural allies the *Malvaceæ* ; and the various uses made by the negroes of the different parts of the tree confirm this expectation. The mucilaginous emollient quality common to the tribe, resides principally in the bark and leaves ; these are dried in the shade, in a free current of air, then reduced to a powder of a beautiful green colour and nearly tasteless ; this powder is kept in a dry place in calico bags, and is called *lalo*. The negroes make daily use of the *lalo* in their food, for the purpose of

keeping up an abundant perspiration and cooling the blood. Adanson and one of the French officers who accompanied him, made use of the *lalo* rather freely, and to it he attributes their preservation from the ardent fevers so prevalent in Senegal during September and October. The author particularly mentions the year 1751, the autumn of which year was more than usually unhealthy in Senegal, and states that himself and his friend were the only persons of the party who were able to follow their usual avocations, all the other officers being confined to their beds. The fruit of the Baobab appears to be as useful as the leaves; in a recent state its flesh is slightly acid and of an agreeable flavour, and its juice, mixed with sugar and water, forms a refreshing beverage in putrid and pestilential fevers. The fleshy envelope of the seeds, when dry, is reduced to an impalpable powder; P. Alpinus says it was sold in his time as a medicine, under the improper name of *terra sigillata*, or Lemnian earth. Monkeys are said to feed on the seeds; these are about the size of a bean, shining, and of a brownish colour, and are made into necklaces by the negroes. The shell of the fruit, and even the fruit itself when spoiled for eating, is burned, and the ley obtained from the ashes, boiled with rancid palm oil, forms an excellent soap.

Our author concludes his account of the various uses made of the Baobab, with the following singular narrative. It has been previously stated that the roots of such trees as grow in stony ground are liable to injury, and that in consequence their trunks decay and become hollow. The negroes take advantage of the cavities thus formed, and shape them regularly into chambers, or rather vast caverns, wherein they deposit the bodies of those whom they deem unworthy to receive the ordinary rites of burial. Of this class are persons called *guiriots*; these are the poets, musicians and players, of both sexes, who are hired to preside over and assist at dances and other entertainments, to which they impart much life and spirit by their buffooneries. The negroes regard these people, while living, with a kind of superstitious awe and reverence, but no sooner are they dead, than such feelings give place to horror and contempt; the natives then neither allow their bodies to be buried in the earth nor cast into the waters, imagining that if thus disposed of, the fish in the latter would be destroyed, and that the former would produce no food. By way of averting these evils the bodies of the *guiriots* are suspended within the hollow trunks of the Baobab, the entrances to which are closed with planks, and there, without being embalmed, they quickly dry up and become converted into a kind of mummy.

But it appears that the Baobab is not exclusively appropriated as a receptacle of the dead; the one measured by Golberry was hollow, and used as their hall of assembly by the inhabitants of the valley of Dock-Gagnack. The entrance was seventeen feet high, and faced a lake; the height of the cavity itself was twenty feet and its diameter twenty-one. The negroes had ornamented the sides of the doorway and the interior of the cavern with rude sculptures in relief. The party pitched their tents by the side of this tree, and M. Golberry was so well pleased with the chamber, that he ordered his bed to be placed within it, intending to pass the night there. This however caused so much dissatisfaction among the natives, that he abandoned his intention, although the chiefs would not have prevented him from carrying it into effect. He states that he had no occasion to repent his forbearance, having been afterwards treated with the greatest kindness by the natives.

In Dr. Wilson's notes above alluded to, it is mentioned that he visited one of these trees in India, which the Bairagees whom he found sitting in its shade told him was the only one in the world, and requested him to take off his shoes as he approached it, an honour which himself and party declined paying. He was informed that several devotees nightly took up their quarters in the hollow trunk of this tree.

It is also stated that in South America the natives hollow out the trunk of the Baobab and use it as a habitation, and that the tree thus hollowed continues to grow and flourish so long as the sap-wood and bark remain. The wild bees of Abyssinia are also reported to deposit their honey in this tree; and that the honey stored therein is the best in the country.

Dr. Alex. Gibson, in the Bombay 'Medical and Physical Transactions,' states that at Goozerat, where grow many fine specimens of the Baobab, the fishermen use the fruit as a float for their nets, and that logs of the very light wood are also employed by them as a catamaran or raft in fishing or duck-catching.

Adanson observes that in Senegal the Baobab has almost as many names as there are kingdoms. The Oualofes call the tree *Goui* and its fruit *Boui*; the French call the tree *calabassier*, and the fruit *monkeys' bread*, (*pain de singe*). Prosper Alpinus, the first botanist who wrote of this tree, says that a fruit called *Baobab* was brought from Ethiopia to Grand Cairo; from his description, and from the notes of his commentator, Wesling, there is no doubt of this fruit being that of our tree, although, as Adanson observes, the fruits seen by Alpinus

must have been small and in a bad state, being probably such as are used at Senegal for no other purpose than making soap. The author considers the figure given by Alpinus to have been drawn from imagination, but remarks that Clusius contented himself with representing only what he saw. Clusius says that he received the fruit under the names of *abavo* and *abavi*, from persons who had it from English sailors returning from Ethiopia, or rather from the coast of Guinea or Senegal: he also says that the Portuguese call the fruit *calebacera*. Scaliger gives a very short description of the fruit, brought from Mozambique under the name of *guanabimus*. After stating that all the above-named authors are cited in Bauhin's Pinax, Adanson observes that M. Lippi's manuscript remarks ought not to be passed over in silence. This learned traveller, who was the victim of a voyage into Abyssinia, undertaken by order of Louis XIV. during a period of tumult and revolution in that country, gives a much more accurate description of the fruit of the Baobab, which he saw at Cairo, whither it had been brought from Upper Egypt, than any author who had preceded him. After a warm eulogium on M. Lippi, Adanson concludes his admirable memoir by stating that it is evident, from the passages quoted, that the authors cited were acquainted only with the fruit and leaves of the Baobab, but that they had no knowledge of its flowers or of the tree which bore them, the monstrous size of which presents a fact the most remarkable which the history of Botany and perhaps that of the world can furnish.

GEO. LUXFORD.

65, Ratcliff Highway,
December 17, 1842.

ART. CVIII.—*Note on the Sands of Barry, and on Equisetum variegatum.* By MR. J. B. BRICHAN.

I HAD lately an opportunity of examining the locality named above, and as *Equisetum variegatum* there assumes a somewhat different appearance from that which it presents on Deeside, the few remarks I have to offer will form an appropriate sequel to my paper on the three allied *Equiseta*, (Phytol. 369). Whether or not the spot in which I found the plant is the same in which it was found by Don, I am unable to say; having no guide and no information, I rather stumbled upon it than searched it out, and though I went over a considerable

space, I detected it only in one spot. As the locality is in various respects interesting, I may be pardoned for occupying a few sentences in particularly describing it.

A considerable part of the parish of Barry, containing from six to ten square miles, is a low sandy flat, which, at some remote period, undoubtedly lay under the sea, and is still very little elevated above its level. The links and sands, which compose the southern portion of this flat, are diversified by numerous sand-hills and knolls, which increase in size towards the south-east, and there terminate in a large sandy ridge, probably about 100 feet above the level of the sea. The smaller ones are covered with grasses, mosses, Carices &c., especially with *Ammophila arenaria* (*Scotticé bent*), which covers also the larger hills and part of the higher ridge already mentioned. Towards that ridge the sand-hills are rather crowded, but to the westward they decrease both in size and in number, rising however in some cases to a height of 20 or 30 feet. Of these the highest and most conspicuous hill, or group, lies close to the sea, about one mile west of *the light-houses*, and immediately south of a large plain or meadow, where a few tall poles mark the locality of an old race-course. It is on all sides clothed with *Ammophila*, but is hollow and broken in the middle. A cart-road runs through the hollow, in the middle of which, and on each side of the road grows *Equisetum variegatum*. The spot is, on an average, not more than ten feet above the sea.

The whole district of which Barry forms a part, rests upon the Old Red Sandstone, which, according to Mr. Miller's intensely interesting work bearing the same name, derives its prevailing colour from an admixture of iron. I know not whether it is to be attributed to the same cause that much of the sand of the district is tinged with red; but in the work just alluded to I find the following. — "The oxide deposited by the chalybeate springs which pass through the lower members of the formation, would give to white sand a tinge exactly resembling the tint borne by this upper member." And it is certain that when a cut of several feet is made in almost any part of the plain of Barry, the chalybeate water immediately appears, and that its peculiar scum is seen floating along the edges of a small stream which bounds the parish on the west, and into which various chalybeate springs discharge their waters. The general appearance of the *surface* where *E. variegatum* grows is perhaps against the supposition that the sand has any mixture of iron; but when the sand is dug, it is found to be of a dingy brown, and the lowest stratum of the sand-hills is streaked with sand of a still deeper hue. These facts appear to confirm the

remarks I lately offered on the three allied species or varieties, — *E. hyemale*, *Mackaii* and *variegatum*; there is, however, this difference between the two localities that I have examined, that the prevailing rocks on Deeside are granite, and, if I mistake not, granitic gneiss. The situation of *E. variegatum* at Barry seems to overthrow my conjecture that “the banks and bed of rivers” are its natural habitat: there is scarcely an imaginable way in which a stream could have deposited it in the spot which it now occupies.

The *roots* of the Barry plant scarcely differ from those of the Deeside variety. The *stems* are of the same variable length and number of articulations, with 4 — 10 striæ: they are completely prostrate, except in a few instances, when supported by *Ammophila arenaria*. When not sheltered by that or any other plant, they are brownish on the upper or exposed side and green on the under; it is, however, possible that the brown colour may be the effect of the lateness of the season. On the upper side also the bands of black upon the sheaths run farther down the stem than they do on the under side. The *teeth* are wedge-shaped, not ovate as at Banchory: the bristles are longer and apparently more persistent. The *catkins* are in general more exserted and matured, and, as well as the stems, have sometimes a reddish tinge. The plant seems to *branch* in the same manner as in the higher and moist situation on Deeside, 150 feet above the sea. When the sand is compacted by small plants which afford no shelter to the *Equisetum*, the latter is generally very small, slender and filiform; where the sand is loose or the plant has shelter, its growth is much stronger, and in the sheltered situation it is greener. In no case does the plant attain the same size as on Deeside. Some specimens slightly resemble *E. Mackaii*, but are perfectly distinct; the resemblance arises from the bristles being longer, and the amount of black upon the sheaths greater than in the usual state of the plant.

The links and sands of Barry form a very interesting botanical station. I have no doubt that a summer ramble among these hills and hollows would amply repay the researches of the botanical visitor; for although my visit took place at the end of October and the beginning of November, when they were in a state of decay, I could detect, among others, the following plants: — *Astragalus hypoglottis*, *Elymus arenarius*, *Juncus balticus*, and, I think, *Erigeron acris*. *Juncus balticus* is especially plentiful, being found in almost every part of the extensive links, and forming large plats in the meadows and hollows between the sand-hills. In this and similar places the intelligent observer cannot fail to be struck with the peculiar adaptation of the

prevailing vegetable productions to the character of the soil in which they grow. To my mind it furnishes a striking instance, not only of the "Wisdom of God in Creation," but of the wisdom of God in *providence* also. In a district of almost pure sand, while the more inland and level part is covered with common vegetation and vegetable mould, the seaward portion has been gradually overgrown with *Ammophila arenaria*, *Carex arenaria*, *Elymus arenarius*, and several other plants, all so well fitted by their creeping roots to bind the sand and prevent it from shifting. Even *Equisetum variegatum*, though confined to a small space, has its creeping root, and is calculated to serve the same end. And thus, in the first instance, an arid waste of sand, either upheaved from the bottom of the sea or exposed by the gradual retiring of its waters, and in that state utterly destitute of vegetation, has, by the agency of a powerful wind, been partly accumulated into a natural bulwark against the return of the ocean; and then, while its plains have by degrees been covered with a mould which has converted them into land capable of cultivation, its still sandy heaps which compose that bulwark have become consolidated, even to the verge of the sea, by a dense covering of plants, the most prominent and important of which are found only in such localities. J. B. BRICHAN.

Manse of Banchory, December 1, 1842.

ART. CIX.—*County Lists of the British Ferns and their Allies.*
Compiled by EDWARD NEWMAN.

I do not wish to conceal the fact that the perusal of Mr. Watson's admirable paper on the 'Geographical distribution of British Ferns,' has been the means of inducing me to attempt a still more rigid investigation of the produce of our counties, so far as regards this beautiful family of plants. In prosecuting this design, I find myself at the very threshold compelled to abandon my original intention of restricting each county list to the observations of an individual botanist: the kind and prompt attention with which my wish, expressed in 'The Phytologist,' has been met, enables me to make these lists far more interesting, by combining under each county the observations of many botanists. In employing the nomenclature formerly proposed by myself, and subsequently adopted in the valuable Catalogue published by the Botanical Society of Edinburgh, I conform to the usage of the majority of my correspondents. The authorities are arranged as

nearly as possible in accordance with the dates of the letters containing the information quoted.

It appears, from carefully collating all the authorities within my reach, that the recorded species of British ferns are forty-six in number: of these one is now considered a doubtful native; twelve (printed in *italics*) are ranked by some authors as varieties; and thirty-three (printed in Roman letters) are acknowledged by every writer. By adhering to these numbers the relative proportions of each county will remain uninfluenced by the different views of botanists on this most interesting but debatable point. Species whose present existence in the county has not been verified by any of my correspondents, are marked with a dagger. †

YORKSHIRE.

Lomaria Spicant. Abundant in the neighbourhood of Sheffield; a rigid jagged variety is sometimes found, *J. Hardy*: common everywhere, *S. Gibson*: heaths, shady banks &c. abundant, *R. Spruce*: Langwith, near York, *S. Thompson*.

Pteris Aquilina. Most abundant in the neighbourhood of Sheffield, and one or two marked varieties occur, *J. Hardy*: common, *S. Gibson*: heaths, shady lanes and woods, frequent, *R. Spruce*: near York, *S. Thompson*.

Allosorus crispus. Fountain's fell, *S. Gibson*: (J. Tatham), *H. C. Watson*, *S. Thompson*: Cronkley-scar &c.; Teesdale; sides of Ingleborough hill; Settle, frequent; on Penhill, near the slate quarry;—*Baines's Yorkshire Flora*.

Polypodium vulgare. Abundant in the neighbourhood of Sheffield, *J. Hardy*: common in many parts of the county; var. *immersum*, mihi, this elegant variety has the sori in small dots, which are sunk in deep pits in the frond, it occurs at Whitby; — *S. Gibson*: frequent near York and Castle Howard, *R. Spruce*: near York, *S. Thompson*; var. *serratum*, Wass-woods near Helmsley, *H. Ibbotson*.

Polypodium Phegopteris. Scarce near Sheffield, *J. Hardy*: in Cave-hole wood near Settle, *J. Tatham*: common at Hebden-bridge, Halifax, and many other parts of the county, *S. Gibson*: frequent about Halifax in rocky woods (R. Leyland), *H. C. Watson*: Scawton Howle near Helmsley, very fine, Buttercrambe-moor and Langwith lane, near York, Teesdale &c. (J. Backhouse, jun.), *R. Spruce*: Ingleborough, with *P. Dryopteris*, *W. Wilson*: near York, *S. Thompson*: Wensley-dale, Bell-hagg near Sheffield, Penhill, gill on Bellerby-moor, Shibden-dale, Ogden-clough &c. near Halifax, rocky woods in the vale of Todmorden frequent, near Helmsley;—*Baines's Yorkshire Flora*; Bolton-woods, *H. Ibbotson*.

Polypodium Dryopteris. Scarce near Sheffield; Anston-rocks, fourteen miles from Sheffield, plentiful, *J. Hardy*: a very common plant in the neighbourhood of Hebden-bridge, *S. Gibson*: Bolton-abbey (Churchill Babington), common in woods about Halifax, *H. C. Watson*: Castle-Howard park, on the lower calcareous grit; Whitstoncliff near Thirsk; in various parts of the North and West Ridings, almost exclusively on the sandstone (J. Backhouse, jun.), *R. Spruce*: Ingleborough, *W. Wilson*: Brimham-rocks, Teesdale; near Pickering, near Whitby, near Richmond, near Helmsley;—*Baines's Yorkshire Flora*; Rievaulx woods, Luilesworth-vale, Cave-hole woods, Bolton-woods, *H. Ibbotson*.

Polypodium calcareum. Plentiful on Anston-rocks, *J. Hardy* : abundant on our hills near Settle, *J. Tatham* : neighbourhood of Settle, where the plants are smaller than those from Lancashire, *S. Gibson* : hills above Settle ; this species is exceedingly distinct from *Dryopteris* when growing (*J. Backhouse*, jun.), *R. Spruce* : Ingleborough with *P. Dryopteris*, *W. Wilson* ; Ingleborough, (*W. W. Brunton*), from whom I have a specimen which is eight inches from tip to tip of the lowest pinnæ, and seven and a half from the base of the lowest pinnæ to the apex of the frond, *S. Thompson* : Arncliffe and Gordale (*R. B. Bowman*), *H. C. Watson* : several places in Gordale, *Baines's Yorkshire Flora*.

† *Woodsia Ilvensis*. Richmond (*J. Wood*), Francis' 'Analysis of British Ferns.'

Cystopteris fragilis. Uncommon in the neighbourhood of Sheffield, *J. Hardy* : Shibden and Beeston woods near Halifax, Settle, Knaresborough, and many other places in the county. The genus *Cystopteris* is said to affect limestone, but I always find the varieties growing much larger, and their forms better displayed, where there is no limestone. Mr. Francis lays great stress on the length of the rachis as a character whereby to distinguish the species ; if he had been a fern-collector he would have known that this character depends very much on the situation in which the plant happens to grow, if, for instance, among loose stones, the rachis will be long, if on a mortared wall, short. The same author also remarks that *C. dentata* is only half the size of *C. fragilis*, and double the size of *C. alpina* : my specimens of the form called *fragilis* vary from 2 to 18 inches in length, of that called *dentata* from 4 to 16 inches, and of the Low Layton plant from 1 to 8 inches ; *S. Gibson* : Shibden-dale near Halifax (*R. Leyland*), *H. C. Watson* ; on the obelisk-bridge, Castle-Howard park ; on old walls &c. in various parts of the north-eastern moors ; near Helmsley, and in the long walk, Knaresborough (*T. B. Powell*) ; sparingly in Teesdale, growing in caves along with *C. dentata*, but keeping perfectly distinct in its habit, appearance of fronds &c. (*J. Backhouse*, jun.), *R. Spruce* ; near Rievaulx-abbey, Helmsley, *H. Ibbotson* ; abundant at Eggleston-bridge on the banks of the Greta, Red-scar, Applegarth ; — *Baines's Yorkshire Flora*.

Cystopteris dentata. Very common near Settle, *J. Tatham* ; Settle and other places, *S. Gibson* ; Egglestone-abbey bridge, and many other places in Teesdale, very fine (*J. Backhouse*, jun.), *R. Spruce*.

Cystopteris angustata. Scarce in three places, Gordale and Attermine scars and Catterick-force, *J. Tatham* ; I have found this variety growing on the very same plant with *C. dentata*, at Lune-bridge, Teesdale ; they are no doubt the same species, (*J. Backhouse*, jun.), *R. Spruce* : near Aysgarth-bridge, Wensley-dale, *Baines's Yorkshire Flora*.

Cystopteris alpina or *regia*. Near Fountain's-abbey, and on wet rocks about Knaresborough, according to Teesdale in the 'Linnean Transactions,' and in *Baines's Yorkshire Flora* it is said to grow near Coxwold, but I have seen specimens from none of these localities, *R. Spruce*.

Polystichum aculeatum. Not common near Sheffield, *J. Hardy* ; near Triangle, four miles from Halifax, and Highgreen woods, *S. Gibson* ; woods near Halifax, (*R. Leyland*), *H. C. Watson* ; Whitstoneliff, near Thirsk ; on the magnesian limestone at Thorpe-arch and other places (*J. Backhouse* jun.), *R. Spruce* ; Thorpe-arch (*J. Ellis*), *S. Thompson*.

Polystichum angulare. Edlington-wood near Doncaster, not common, *J. Hardy* , in endless variety in Beeston-woods, about seven miles north-east of Halifax, Shibden

and many other places near Halifax, Whitby, Richmond, &c. *S. Gibson*; Richmond, (R. B. Bowman), *H. C. Watson*; Whitstoncliff near Thirsk, on the magnesian limestone at Thorpe-arch and other places; I believe that *angulare* is a variety of *lobatum* and not of *aculeatum* (J. Backhouse jun.), *R. Spruce*.

Polystichum lobatum. Scarce in the Sheffield district, more common near Doncaster, *J. Hardy*; in all the woods in the neighbourhood of Hebden-bridge, *S. Gibson*; woods near Halifax (R. Leyland), a little below Catterick-force (J. Tatham), *H. C. Watson*; frequent in the stony woods about Castle-Howard, Thorpe-arch and Tadcaster, on the magnesian limestone (J. Backhouse, jun.), *R. Spruce*; near Settle (J. Tatham), *S. Thompson*.

Polystichum Lonchitis. Sparingly on the rocks above Settle, at an elevation of 1500 feet, *J. Tatham*, *S. Gibson*; Attermire-scar above Settle (J. Tatham), no fruit, I suspect this at least to be a young *A. lobatum*, *H. C. Watson*; Settle (J. Tatham), *S. Thompson*, who sends a frond, which appears to me to be the seedling, or perhaps, more properly speaking, the alpine form of *aculeatum*, *E. Newman*; near Malham, *W. Wilson*.

Lastræa Thelypteris. Potterie-carr, rare, *J. Hardy*; near York, in two or three localities. *S. Gibson*; abundant in Askham-bogs and Heslington-fields near York, fructifying in both places; Terrington-carr, amongst *Bryum squarrosum* and *Hypnum nitens*, *H. Ibbotson*; near Copgrove, near Doncaster, near Hovingham, near Settle, *Baines's Yorkshire Flora*.

Lastræa Oreopteris. Very common in the Sheffield district, *J. Hardy*; abundant above Swabeck, *J. Tatham*; very frequent in woods about Halifax (R. Leyland), *H. C. Watson*; frequent on the north-eastern moors, Castle-Howard park (very fine), wood near Earswick and Langwith-lane near York (J. Backhouse jun.), *R. Spruce*.

Lastræa Filix-mas. Abundant in the Sheffield district, *J. Hardy*; very common near York, *R. Spruce*, *S. Thompson*.

† *Lastræa cristata*. On Plumpton-rocks near Knaresborough, *Baines's Yorkshire Flora*. There is at present no other information about this species, *E. Newman*.

Lastræa rigida. Wharnside and Ingleborough, *W. Wilson*; on the rocks above Settle, at an elevation of 1500 feet, *J. Tatham*; Attermire-rocks and other places in the neighbourhood of Settle, *S. Gibson*, (J. Backhouse, jun.), *R. Spruce*; Clay-pit scar above Settle (J. Tatham), *H. C. Watson*; first gathered in 1815 on Ingleborough, near the foot of the mountain, towards the neighbouring village (W. T. Bree), *Newman's British Ferns*.

Lastræa dilatata. Abundant and very variable in the Sheffield district, *J. Hardy*; common in all the lanes and woods about Hebden-bridge &c. in endless variety, *S. Gibson*; very frequent near Halifax (R. Leyland), Black forest, Richmond (Rev. J. E. Leefe), both these appear to me very near *spinulosa*, *H. C. Watson*; the commonest fern in wet woods at Castle-Howard, Stockton forest, Leckby-carr &c. (J. Backhouse, jun.), *R. Spruce*; near York, *S. Thompson*.

Lastræa spinulosa. *Spinulosa*? Potterie-carr near Doncaster, *J. Hardy*; Scarborough-mere, *S. Gibson*; bog near Rufforth-grange, Langwith, Stockton-forest, Thorne-moor, Leckby-carr &c. (J. Backhouse jun.), *R. Spruce*; near York, a singular variety is found at Thorne-moor, *S. Thompson*.

Lastræa dumetorum. In stony places in Castle-Howard park, *R. Spruce*.

Athyrium Filix-femina. Abundant in the Sheffield district, *J. Hardy*; in endless variety in many places, *S. Gibson*; shady banks near York, frequent, Langwith, *S. Thompson*, *R. Spruce*.

Athyrium irriguum. Occurs occasionally in the Sheffield district, *J. Hardy*; Midgpool-lane near Hebden-bridge; Mr. Francis observes that this plant is very tender and without fruit; the specimens which Sir J. E. Smith sent to his correspondents are very rigid, and bear fruit very abundantly, *S. Gibson*.

† *Asplenium fontanum*. I found a single root of this plant on an old wall above Skipton-castle, in July 1835; I took all the fronds and the plant, of course, disappeared; and I have a specimen of the plant given to me as a Teesdale plant, but perhaps under some mistake, *S. Gibson*.

† *Asplenium lanceolatum*. On a wall in the village of Wharfe (Bolton), *Turner & Dillwyn*, 723.

Asplenium Adiantum-nigrum. Rather uncommon in the Sheffield district, *J. Hardy*; near Halifax and other places, *S. Gibson*; Old walls in Ray-wood, Castle Howard; on the moors near the Hole of Horcum; on the banks of the Greta, and many other places in Teesdale, Whitstoncliff &c. (*J. Backhouse jun.*), *R. Spruce*; rocks at Ampleforth near Helmsley, walls on the moors above Pickering, *H. Ibbotson*.

Asplenium Ruta-muraria. Common in the Sheffield district, *J. Hardy*; on the walls of Skipton-castle, near Hebden-bridge, *S. Gibson*; old walls, bridges &c. near York and Castle Howard, *R. Spruce*; York city-walls, *S. Thompson*.

† *Asplenium septentrionale*. Ingleborough-hill (Mr. Tofield). It does not appear to have been found by any subsequent botanist;—*Turner and Dillwyn*, 723.

I have seen specimens from Ingleborough, and think it is probably there yet. *J. Backhouse, jun.*

Asplenium marinum. On the cliffs north of Scarborough, very rare, *S. Gibson*.

Asplenium Trichomanes. Common in the Sheffield district, *J. Hardy*; High-green woods and many other places, *S. Gibson*; old walls in Ray-wood, Castle Howard, Knaresborough, (T. B. Powell); on an oolitic limestone crag at Crambeck, near the Derwent; near the Hole of Horcum; on the magnesian limestone at Thorpe-arch; Whitstoncliff near Thirsk, where I find a variety with divided fronds, (*J. Backhouse*), *R. Spruce*; Near Pontefract, *S. Thompson*; a variety with the fronds deeply divided grows on the Whitstoncliff near Thirsk, *Baines's Yorkshire Flora*.

Asplenium viride and the ramose variety, very common near Settle, *J. Tatham*; common at Green-hill, Settle and other parts of Craven; var. *ramosum*, Ogden-kirk near Halifax; var. *acutifolium* mihi, with the pinnæ very long and pointed, this beautiful and very distinct variety was found near Settle by Dr. Chorley of Leeds, to whom I am indebted for specimens, *S. Gibson*; Aislabeck, Richmond (James Ward), Goredale (R. B. Bowman), *H. C. Watson*; specimens from near Halifax, *W. Wilson*; Cronkley-fell and many localities in Teesdale, on the limestone (*J. Backhouse jun.*), *R. Spruce*; Gilla-leys wood; walls on the moors near Pickering, *H. Ibbotson*; Ingleborough, Widdale-fell, Wensley-dale, Reeth-moor in Swaledale, Hill-gill near the side of the brook, *Baines's Yorkshire Flora*.

Scolopendrium vulgare. Common in the Sheffield district; var. *crispum*, plentiful near Sprotborough, two miles from Doncaster; var. *undulatum*, in Edlington-wood and on Warmsworth-cliff near Doncaster; var. *ramosum*, one plant on rocks near Sprotborough, *J. Hardy*; on the sea-coast at Scarborough, and on the hills above Settle, *S. Gibson*; Thorpe-arch (*J. Backhouse, jun.*); in the Long walk Castle-bank, and at Knaresborough (T. B. Powell); old walls near Castle Howard, peculiarly abundant in Mowthorpe-dell, where I have gathered many varieties; *R. Spruce*; Plumpton-park near Harrogate (*J. Richardson*), *S. Thompson*.

Ceterach officinarum. On the rocks above Malham-tarn near Settle, *J. Tatham*, *S. Gibson*; on the old walls of Kirklees-park, near Halifax, *S. Gibson*.

† *Trichomanes speciosum*. Found by Dr. Richardson at Belbank, scarce half a mile from Bingley, at the head of a remarkable spring, and nowhere else (Ray, Syn. 128, pl. iii. fig. 3); in September, 1782, I found this rare plant in Belbank-wood near Bingley, the place mentioned in Ray's Synopsis (Mr. Teesdale, in his Supplement to 'Plantæ Eboracenses,' published in the 'Transactions of the Linnean Society of London'); *Trichomanes brevisetum* was certainly found near Bingley by Bolton, I have seen a specimen from that place, *S. Gibson*; it was figured in 'English Botany,' pl. 1417 [1445, new edit.] from specimens collected in this locality, but I understand it does not now exist there, *R. Spruce*; it was figured by Bolton from a specimen from Belbank-wood near Bingley; the spring-head near which it was found is now walled in to supply the town of Bingley with water, but the wood is very large, and it is very likely to be somewhere else in the neighbourhood, *J. Backhouse, jun.*

Hymenophyllum Wilsoni. Turner-clough, seven miles from Halifax on the Oldham road, *S. Gibson*; rocks near Lower Harrogate (J. Backhouse jun.), *R. Spruce*; Greenfield, *W. Wilson*.

Hymenophyllum Tunbridgensis. Near Todmorden, *S. Gibson*; on rocks by a stream running down to the sea at a place called Hayburn-wyke, near Whitby (Mr. Peterkin), *R. Spruce*; near Halifax and at Greenfield, *W. Wilson*.

Osmunda regalis. Rare about Sheffield, more plentiful in the Doncaster district, *J. Hardy*; Ayton-forge near Scarborough, *S. Gibson*; Askham-bogs; Langwith-moor; Wheldrake-lane (J. Backhouse jun.); bog near Haigh-park windmill, Knaresborough (R. B. Powell), *R. Spruce*; Beck-hole near Whitby, *Baines's Yorkshire Flora*.

Botrychium Lunaria. Widely distributed in the Sheffield district, but never occurring in any quantity, *J. Hardy*; abundant in Tarn-field pasture near Settle, *J. Tatham*; Midgley-moor, *S. Gibson*; near Halifax, in dry fields, not very plentiful (R. Leyland), *H. C. Watson*; very fine in pastures at Ganthorpe near Castle Howard; near Coneysthorpe; Terrington-carr; Knavesmire, York; wood near Earswick; Low Harrogate (J. Backhouse jun.), *R. Spruce*; Airyholme near Hovingham, above the wood bridge that crosses the Tees to Lower Cronkley, and at Moor-riggs in Teesdale; Cotherstone-fell; on the Hambleton hills, frequent; near Whitby; Halves-farm pastures near Knaresborough; near Richmond; *Baines's Yorkshire Flora*.

Ophioglossum vulgatum. Common in the Sheffield district, *J. Hardy*; common in many places, *S. Gibson*; Round Howe near Richmond (James Ward), *H. C. Watson*; abundant in old pastures and woods around Castle Howard, where I have seen plants six inches high, growing amongst *Equisetum fluviatile*; not unfrequent near York, *R. Spruce*; damp meadows near York, abundant, *S. Thompson*; Ganthorpe-moor, Langwith, near York, *H. Ibbotson*.

Lycopodium clavatum. High moors five miles from Sheffield, abundant, *J. Hardy*; very sparingly on moors in the vale of York, as on Stensall, Stockton-forest, &c. but abundant on all the moors in the north riding, *R. Spruce*; Stockton-common near York (J. Backhouse, jun.), *S. Thompson*; Terrington-carr (H. Ibbotson to J. Storey), *H. C. Watson*; Midgley-moor, *S. Gibson*; common on elevated moors, *H. Ibbotson*.

Lycopodium alpinum. High moors five miles from Sheffield, not common, *J. Hardy*; very common on Cronkley-fell and many other places in Teesdale (J. Backhouse jun.), Hutton Bushel moor, near Scarborough (Mr. Peterkin), *R. Spruce*; very

abundant on the side of Ingleborough, near the summit; Aislaby low moor near Whitby; on Sowerby, Wadsworth and Midgley moors, frequent; *Baines's Yorkshire Flora*; Cronkley-fell, Teesdale, Pen-y-ghent (R. B. Bowman), *H. C. Watson*.

Lycopodium inundatum. Plentiful in various parts of Strinsall and Towthorpe moors, as well as in Stockton-forest; Terrington-carr, scarce, *R. Spruce*; Stockton-common, *S. Thompson*, *S. Gibson*; in a sand-pit on the Malton-road, four and a half miles from York; Norland-moor near Halifax, *Baines's Yorkshire Flora*; Shackle-moor near Castle-Howard, *H. Ibbotson*.

Lycopodium selaginoides. Stockton-forest; Welburn-moor near Castle Howard; Teesdale, (J. Backhouse, jun.); Goldsbro'-moor near Knaresborough (J. B. Powell); Hackness near Scarborough (Mr. Peterkin), *R. Spruce*; Stockton-common, *S. Thompson*; on a part of the moor opposite the poor-houses in Wheldrake-lane, four miles east of York; on an island just above the bridge that crosses the Tees to Lower Cronkley; various places near Settle; in a marshy place on the moor north-west of the Beacon, near Richmond; on the top of Whitstoncliff near Thirsk; *Baines's Yorkshire Flora*; near the beacon, Richmond (James Ward), Towthorpe-moor (J. Storey), *H. C. Watson*.

Lycopodium Selago. High moors five miles from Sheffield, not common, *J. Hardy*; sparingly on Stockton-forest and Slingsby-moor, but not unfrequent on the north-eastern moors, *R. Spruce*; Pen-y-ghent and Ingleborough (J. Tatham), *S. Thompson*; near Settle, abundant; Penhill; moors near Halifax, Todmorden &c., *Baines's Yorkshire Flora*; Pen-y-ghent (R. B. Bowman), *H. C. Watson*; High-green woods, and many other places in the county, *S. Gibson*.

Isoetes lacustris. Castle-Howard lake; in the Foss reservoir near Coxwold, *H. Ibbotson*.

Pilularia globulifera. Stockton-common near York, Scarborough-mere &c. *S. Gibson*; margin of Gormire-pool near Thirsk, *H. Ibbotson*; Gormire, at the base of Whitstoncliff; Stockton-forest near York, (O. A. Moore); and near Richmond, *Baines's Yorkshire Flora*.

Equisetum hyemale. By the Derwent at Crambeck; near Raskelf (J. Backhouse jun.), *R. Spruce*; from Wakefield to Pontefract; Goodland-dale near Whitby; Hackness near Scarborough; near Halifax, *Baines's Yorkshire Flora*; dry woods at Castle Howard and Kirkham, not common (Teesdale), about Leeds but rare (Rev. W. Wood), Hackfall (Rev. J. Dalton) &c. *Turner & Dillwyn*; Bolton-woods in Wharfedale, *S. Gibson*; by the banks of a rivulet at Conesthorpe, *H. Ibbotson*.

Equisetum variegatum. Near Winch-bridge, and other places in Teesdale, *S. Gibson*, *C. C. Babington*, (J. Backhouse) *R. Spruce*; *H. Ibbotson*.

Equisetum palustre. Common in the Sheffield district, *J. Hardy*; abundant near York, particularly in ditches by the river Foss and in Hob-moor brick-ponds; not unfrequent throughout the district, *R. Spruce*; common, we have three or four varieties of this species, some of them not uncommon, *S. Gibson*.

Equisetum limosum. Plentiful in the Sheffield district, *J. Hardy*; abundant near York, particularly in ditches by the river Foss, and in Hob-moor brick-ponds; not unfrequent throughout the district, *R. Spruce*; at the bottom of Wensley-dale, *Baines's Yorkshire Flora*; common, we have two forms of this plant, perhaps as distinct as *E. Mackaii* from *E. variegatum*, one, much smaller and having fewer teeth on the sheaths, grows in the canal near Hebden-bridge, the other and larger plant grows near Selby, *S. Gibson*.

Equisetum sylvaticum. Not common in the Sheffield district; I have never ga-

thered it in fruit; a slender variety with the branches much attenuated is sometimes met with, *J. Hardy*; moist meadows at Ganthorpe near Castle Howard, *R. Spruce*; Goadland-dale near Whitby; near Green Hammerton, Settle, Richmond, Leeds &c.; by the brook at Hesketh-grange, near Boltby, Arncliffe woods, *Baines's Yorkshire Flora*; common, *S. Gibson*.

Equisetum arvense. Too common in the Sheffield district, *J. Hardy*; moist meadows, cornfields &c. frequent, *R. Spruce*; common, *S. Gibson*, *H. Ibbotson*.

Equisetum fluviatile. Frequent near Castle Howard, especially in boggy woods, where I have seen branched fronds a foot high, surmounted by catkins; Langwith, Stockton and other places near York, also near Malton (*J. Backhouse jun.*), *R. Spruce*; in the Roche at Roche-abbey; roadside between Thornburgh and Upsall; wood on Wass-bank on the road to Helmsley; Arncliffe wood, *Baines's Yorkshire Flora*; Lombard's-clough near Todmorden, *S. Gibson*.

EDWARD NEWMAN.

(To be continued).

ART. CX.—*Additions to the Phænogamic Flora of ten miles round Edinburgh.* By THOMAS EDMONSTON, jun. Esq.

(Continued from p. 407).

PLANTS NOT PREVIOUSLY OBSERVED IN THE DISTRICT.

Plantago Coronopus, var. *β. nana*. Abundant near Granton, and elsewhere.

Symphytum officinale, var. *β. patens*. Near Muttonhole, &c.

SPECIES PREVIOUSLY OBSERVED.

Geranium rotundifolium. Very fine at Preston-pans.

Geum intermedium. Abundant in many places, as at Roslin, Hawthornden, &c. Is this a species or not?

Habenaria chlorantha, Bab. After observing this plant very attentively for some time, and comparing it with the allowed *H. bifolia*, and with specimens from the Edinburgh Botanical Society, from Mr. Babington, and other eminent botanists, of their *H. chlorantha*, I must say that I cannot see permanent grounds of specific distinction. The extreme forms appear very unlike, but the intermediate ones are so very common, that it appears to me there are scarcely sufficient reasons for separating the plants. I should much like to see in 'The Phytologist' a record of the observations of some botanist familiar with the plants in a living state.

Hieracium sabaudum. One of the most common Edinburgh hawkweeds.

Hordeum pratense. Not now to be found in the district; some fine specimens occurred to Dr. Neill in the King's Park many years since.

Juncus obtusiflorus. Pentland Hills. A curious viviparous variety of *J. supinus* (*J. uliginosus*), with half-prostrate stems from a foot to two and a half feet long, occurs with the preceding in the marshes near Collinton.

Lamium Galeobdolon and *rugosum*. Dalkeith Park. *L. album*, *Linn.*, *L. maculatum*, *Linn.*, and *L. rugosum*, *Ait.*, appear to be correctly referred by some authors to states of the same species.

Leontodon palustre. Very abundant on the Pentland Hills and elsewhere near Edinburgh. From several years' observation of this plant in Shetland and elsewhere, I am inclined to think it is a good species, although now generally sunk into a variety of *L. Taraxacum*. The characters drawn from the involucre appear to be constant in all the specimens I have seen; and it is by no means improbable that small specimens of *L. Taraxacum* have been confounded with *palustre*, for I have seen them growing together, and each preserving its distinctive characters.

Leontodon autumnale. Specimens of a curious variety of this plant having a very stout scape, and covered with a very dense, long, and silky pubescence, occur near Collinton. It is exactly similar to some specimens brought from the Outer Hebrides by Dr. Balfour and Mr. Babington last year, and exhibited at the Botanical Society.

Polygala vulgaris. I have observed some curious variations in the size of the leaves and sepals, and in the habit, of some *Polygalas* on Arthur's Seat, Braid, Blackford and Corstorphine hills, &c., and Mr. E. Forbes has registered the same. Whether these differences may prove sufficiently constant to constitute species, I must leave to future observers.

Potamogeton. Great numbers of this intricate genus are to be met with around Edinburgh, and, I have little doubt, forms (or species) different from those described, but I confess myself perfectly unable to distinguish many of the puzzling forms; and I do think that minute differences in the shape of the fruit are not always to be depended on.

Primula veris, α . *Lin.* (*P. veris* of authors), β . *Lin.* (*P. vulgaris*) and γ . *Lin.* (*P. elatior* of British botanists, *P. acaulis*, β . *caulescens*, Balfour and Babington). All these forms (for it seems now fully proved that they are no more) are common about Edinburgh.

Sedum reflexum. St. David's, Fife.

Senecio aquaticus, β . *erraticus*, and other curious states, occur at Duddingston-loch.

Stratiotes aloides. Abundant in a brook which runs into Duddingston-loch. This plant, and *Butomus umbellatus*, are said to have been planted in the above station, but I know not on what grounds.

Thalictrum flavum. St. David's, Fife.

Trifolium incarnatum. Aberlady, Haddingtonshire, apparently indigenous.

THOS. EDMONSTON, JUN.

Baltasound, Shetland,
November 27, 1842.

ART. CXI. — *Some Account of the Botanical Collections recently made by Dr. Theodore Kotschy (for the Wurtemberg Botanical Union) in Nubia and Cordofan.* Communicated by MR. WM. PAMPLIN, jun.

(Continued from p. 420)

WE will now proceed to give a complete enumeration of the species contained in the entire collection.

<i>Marsileaceæ.</i>	<i>Helopus annulatus</i> , <i>Nees</i>	<i>Sporobolus glaucifolius</i> , <i>H.</i>
<i>Marsilea nubica</i> , <i>Al. Braun</i>	<i>Schœnefeldia gracilis</i> , <i>Kth.</i>	<i>Crypsis schœnoides</i> , <i>Lam.</i>
<i>Alismaceæ</i>	<i>Lappago occidentalis</i> , <i>Nees</i>	<i>Oryza sativa</i> , <i>L.</i> [<i>Forsk.</i>
<i>Alisma Kotschy</i> , <i>Hochst.</i>	<i>racemosa</i> , <i>Schreb.</i>	<i>Andropogon annulatus</i> ,
<i>enneandrum</i> , <i>Hochst.</i>	<i>Leptochloa arabica</i> , <i>Kunth</i>	<i>Gayanus</i> , <i>Kunth</i>
<i>Sagittaria nymphæifolia</i>	<i>Aristida hordeacea</i> , <i>Kunth</i>	<i>nervatus</i> , <i>Hochst.</i>
<i>Hydrocharideæ.</i>	<i>Kotschy</i> , <i>Hochst.</i>	<i>Sorghum saccharatum</i> , <i>Per.</i>
<i>Udora cordofana</i> , <i>Hochst.</i>	<i>meccana</i> , <i>Hochst.</i>	<i>halapense</i> , <i>Pers.</i>
<i>Nymphæa cærulea</i> , <i>Savi</i>	<i>Sieberiana</i> , <i>Trin.</i>	<i>Diplachne elongata</i> , <i>Hoch.</i>
<i>ampla</i> , <i>Cand.</i>	<i>stipiformis</i> , <i>Lam.</i>	<i>alba</i> , <i>H.</i>
<i>Lotus</i> , <i>L.</i>	<i>plumosa</i> , <i>L.</i>	<i>poæformis</i> , <i>H.</i>
<i>Gramineæ.</i>	<i>uniglumis</i> , <i>Licht.</i>	<i>Poa ciliaris</i> , <i>L.</i>
<i>Cenchrus echinatus</i> , <i>L.</i>	<i>Setaria imberbis</i> , <i>R. S.</i>	<i>Eragrostis tremula</i> , <i>H.</i>
<i>longifolius</i> , <i>Hochst.</i>	<i>verticillata</i> , <i>Beauv.</i>	<i>pilosa</i> , <i>Beauv.</i>
<i>macrostachys</i> , <i>Hochst.</i>	<i>Pennisetum lanuginosum</i> , <i>H.</i>	<i>megastachya</i> , <i>Link</i>
<i>Elytrophorus articulatus</i> , <i>B.</i>	<i>Gymnothrix nubica</i> , <i>Hochst.</i>	<i>Triachyrum cordofanum</i> , <i>H.</i>
<i>Cynodon Dactylon</i> , <i>Pers.</i>	<i>Panicum arvense</i> , <i>Kunth</i>	<i>Ctenium elegans</i> , <i>Kunth</i>
<i>Digitaria ciliaris</i> , <i>Koel.</i>	<i>turgidum</i> , <i>Forsk.</i>	<i>Cyperoideæ.</i> [<i>Rتب.</i>
<i>Chloris punctulata</i> , <i>Hochst.</i>	<i>subalbidum</i> , <i>Kunth</i>	<i>Cyperus conglomeratus</i> ,
<i>spathacea</i> , <i>Hoc.</i> [<i>W.</i>	<i>Petiverii</i> , <i>Kin.</i>	<i>elongatus</i> , <i>Sieb.</i>
<i>Dactyloctenium ægyptiacum</i>	<i>Kotschyanum</i> , <i>Hoch.</i>	<i>aristatus</i> , <i>Sieb.</i>

<i>Cyperus retusus</i> , <i>Nees</i>	<i>Compositæ.</i>	<i>Leucas ciliata</i> , <i>Benth.</i> <i>β. hirsuta</i>
<i>squarrosus</i> , <i>L.</i>	<i>Dicoma tomentosa</i> , <i>Cass.</i> =	
<i>lepidus</i> , <i>Hochst.</i>	<i>Schaffnera carduoides</i> , <i>Sch.</i>	<i>Leonotis pallida</i> , <i>Benth.</i>
<i>Lamarckianus</i> , <i>Schult.</i>	<i>Diplostemma acaule</i> , <i>C. H.</i>	<i>Verbena supina</i> , <i>L.</i>
<i>resinosus</i> , <i>Hochst.</i>	<i>alatum</i> , <i>Hchs</i> [<i>Schl</i>]	<i>Holochiloma resinosum</i> , <i>H.</i>
<i>pygmæus</i> , <i>Rottb.</i>	<i>Sphæranthus angustifolius</i> ,	<i>Volkameria Acerbyana</i> , <i>Vis</i>
<i>rotundus</i> , <i>L.</i>	<i>nubicus</i> , <i>Sch.</i> = [<i>Cnd.</i>	<i>Asperifoliaceæ.</i>
<i>vulgaris</i> , <i>Kunth</i>	<i>Sprunera alata</i> , <i>Schultz</i>	<i>Echium setosum</i> , <i>Del.</i>
<i>Fimbristylis hispidula</i> , <i>Kth.</i>	<i>Vernonia paucifolia</i> , <i>Less.</i> <i>β.</i>	<i>Coldenia procumbens</i> , <i>L.</i>
<i>dichotoma</i> , <i>Vahl.</i>	<i>angustifolia</i>	<i>Heliotropium undulat.</i> <i>Vhl.</i>
<i>Isolepis prælongata</i> , <i>Nees</i>	<i>Ageratum conyzoides</i> , <i>L.</i>	<i>cordofanum</i> , <i>Hochst.</i>
<i>Heleocharis monandra</i> , <i>H.</i>	<i>Bidens bipinnata</i> , <i>L.</i>	<i>subulatum</i> , <i>H.</i>
<i>Commelinaceæ.</i>	<i>Ethalia gracilis</i> , <i>Cand.</i>	<i>bicolor</i> , <i>H.</i>
<i>Commelina subaurantiaca</i> , <i>H.</i>	<i>Pluchea Kotschy</i> , <i>Schltz.</i>	<i>supinum</i> , <i>L.</i>
<i>Forskæolii</i> , <i>Vahl</i>	<i>Gnaphalium niliacum</i> , <i>Rad.</i>	<i>pallens</i> , <i>Caill.</i>
<i>Juncaceæ.</i>	<i>Cotula cinerea</i> , <i>Del.</i>	<i>ovalifolium</i> , <i>Forsk.</i>
<i>Tenagocharis alismoides</i> , <i>H.</i>	<i>anthemoides</i> , <i>L.</i>	<i>indicum</i> , <i>L.</i>
<i>Palmeæ.</i>	<i>Inulaster Kotschy</i> , <i>Schultz</i>	<i>Cordia abyssinica</i> , <i>Hochst.</i>
<i>Cucifera thebaica</i> , <i>Del.</i>	<i>Pulicaria undulata</i> , <i>Cand.</i>	<i>Anchusa asperrima</i> , <i>Del.</i>
<i>Coronariæ.</i>	<i>Francœuria crispa</i> , <i>Cass.</i>	<i>Convolvulaceæ.</i>
<i>Asphodelus fistulosus</i> , <i>L.</i>	<i>Doellia Kotschy</i> , <i>Schultz</i>	<i>Convolvulus pycnanthus</i> , <i>H.</i>
<i>Characeæ.</i>	<i>Pegolettia senegalensis</i> , <i>Cas.</i>	<i>rhinospermus</i> , <i>H.</i>
<i>Chara brachypus</i> , var. <i>nubica</i> , <i>Al. Braun</i>	<i>Stengelia Kotschyana</i> , <i>Hch.</i>	<i>filicaulis</i> , <i>Vahl.</i>
<i>Amentaceæ.</i>	<i>Blainvillea Gayana</i> , <i>Cass.</i> =	<i>lachnospermus</i> , <i>H.</i>
<i>Salix</i> — sine flor.	<i>Eisenmannia clandestina</i> , <i>S.</i>	<i>microphyllus</i> , <i>Sieb.</i>
<i>Urticaceæ.</i>	<i>Hinterhubera Kotschy</i> , <i>Sch</i>	<i>Batatas pentaphylla</i> , <i>Chois.</i>
<i>Ficus glumosa</i> , <i>Caill.</i>	<i>Eclipta erecta</i> , <i>L.</i>	<i>auriculata</i> , <i>Hochst.</i>
<i>Nyctagineæ.</i>	<i>Sclerocarpus africanus</i> , <i>Jacq</i>	<i>Ipomœa Kotschyana</i> , <i>Hch.</i>
<i>Boerhaavia hirsuta</i> , <i>W.</i>	<i>Dipterotheca Kotschy</i> , <i>Sch.</i>	<i>coscinosperma</i> , <i>H.</i>
<i>repanda</i> , <i>W.</i>	<i>Microrhynchus pentaphyllus</i> ,	<i>gnaphalosperma</i> , <i>H.</i>
<i>vulvariæfolia</i> , <i>Poir.</i>	<i>Sonchus cornutus</i> , <i>Hoc.</i> [<i>Ho.</i>	<i>coptica</i> , <i>Roth</i>
<i>Aristolochiæ.</i>	<i>Xanthium strumarium</i> , <i>L.</i>	<i>repens</i> , <i>Roth.</i>
<i>Aristolochia Kotschy</i> , <i>Hch.</i>	<i>Cucurbitaceæ.</i>	<i>palmata</i> , <i>Frsk.</i>
<i>Laurineæ.</i>	<i>Bryonia fimbriatipula</i> , <i>Fenz</i>	<i>cardiosepala</i> , <i>H.</i>
<i>Cocculus Bakis</i> , <i>A. Rich.</i>	<i>Momordica crinocarpa</i> , <i>Fnz</i>	<i>pinnata</i> , <i>H.</i>
<i>Plumbaginæ.</i>	<i>Cymbalaria</i> , <i>F.</i>	<i>acanthocarpa</i>
<i>Plumbago auriculata</i> , <i>Lam.</i>	<i>Balsamina</i> , <i>L.</i>	<i>sulphurea</i> , <i>H.</i>
<i>Rubiaceæ.</i>	<i>Cyrtanema convolvulacea</i> , <i>F</i>	<i>trematosperma</i> , <i>H.</i>
<i>Spermacoce compacta</i> , <i>Hch.</i>	<i>Coniandra corallina</i> , <i>F.</i>	<i>Polygalaceæ.</i>
<i>leucodea</i> , <i>H.</i>	<i>Cucurbita exanthematica</i> , <i>F</i>	<i>Polygala erioptera</i> , <i>Cand.</i>
<i>Borreria radiata</i> , <i>Cand.</i>	<i>Cucumis Bardana</i> , <i>F.</i>	<i>eriopt.</i> var. <i>pubescens</i>
<i>Mitrocarpus senegalensis</i> , <i>C.</i>	<i>cognata</i> , <i>F.</i>	<i>obtusata</i> , <i>Del.</i>
<i>amplius</i> , <i>Hochst.</i>	<i>ambigua</i> , <i>F.</i>	<i>Personatæ.</i>
<i>Kohautia strumosa</i> , <i>Hochst.</i>	<i>Labiata et Verbenaceæ.</i>	<i>A. — Rhinanthææ.</i>
<i>senegalensis</i> , <i>Cham.</i>	<i>Moschosma polystachyum</i> , <i>B</i>	<i>Striga orchidea</i> , <i>Hochst.</i>
<i>No. 138.</i>	<i>Ocymum dichotomum</i> , <i>Hch.</i>	<i>hermontica</i> , <i>Del.</i>
<i>cæspitosa</i> , <i>Schnizl.</i>	<i>lanceolatum</i> , <i>Schum.</i>	<i>Chascanum marrubiifol.</i> <i>F.</i>
	<i>menthæfolium</i> , <i>Hchst.</i>	<i>lacteum</i> , <i>F.</i>

B.— <i>Acanthaceæ</i> .	<i>Eranthemum decurrens</i> , <i>H.</i>	<i>Solanum nigrum</i> , <i>L.</i>
<i>Acanthodium hirtum</i> , <i>Hoch.</i>	C.— <i>Scrophulariææ</i> .	albicaule, <i>Kotschy</i>
<i>Monechma hispidum</i> , <i>H.</i>	<i>Macrosiphon elongatus</i> , <i>H.</i>	hastifolium, <i>Hochst.</i>
bracteosum, <i>H.</i>	fistulosus, <i>Hochst.</i>	<i>Capsicum conicum</i> , <i>Meyer</i>
<i>Polyechma cæruleum</i> , <i>Hch.</i>	<i>Chilostigma pumilum</i> , <i>Hchs</i>	<i>Physalis somnifera</i> , <i>L.</i>
<i>Dipteracanthus patulus</i> , <i>Nees</i>	<i>Sutera serrata</i> , <i>Hochst.</i>	<i>Lysimachiaceæ</i> .
<i>Asteracanthamacrurantha</i> , <i>H</i>	dissecta, <i>Endl.</i>	<i>Utricularia inflexa</i> , <i>Forsk.</i>
<i>Barleria Hochstetteri</i> , <i>Nees</i>	<i>Anticharis arabica</i> , <i>Endl.</i>	stellaris, <i>L.</i>
<i>Thunbergia annua</i> , <i>Hochst.</i>	D.— <i>Bignoniaceæ</i> . [<i>H.</i>	<i>Asclepiadææ</i> .
<i>Thyloglossa sexangularis</i> , <i>H</i>	<i>Ceratotheca melanosperma</i> ,	<i>Conomitra linearis</i> , <i>Fenzl.</i>
= <i>Rostellaria sexang.</i> <i>H.</i>	<i>Sesamum rostratum</i> , <i>Hochst.</i>	<i>Canahia Delilei</i> , <i>Cand.</i>
palustris, <i>Hochst.</i> =	orientale, <i>L.</i>	<i>Glossonema Boweanum</i> , <i>C.</i>
<i>Gendurussa palustris</i> , <i>H.</i>	<i>Petalium Caillaudii</i> , <i>Del.</i>	<i>Contortææ</i> .
<i>Peristrophe bicalyculata</i> , <i>N.</i>	<i>Solanaceæ</i> .	<i>Hippion hyssopifolium</i> , <i>S.</i>
<i>Dicliptera spinulosa</i> , <i>Hochst.</i>	<i>Solanum dubium</i> , <i>Fres.</i> var.	<i>Sapotaceæ</i> .
<i>Hypoestes latifolia</i> , <i>Hochst.</i>	aculeatiss.	<i>Styrax officinalis</i> , <i>L.</i>

W. PAMPLIN, JUN.

(To be continued).

ART. CXII.—*Varieties.*

242. *On the poisonous effects of the Seeds of Hemlock.* In Lindley's 'Introduction to the Natural System,' 2nd ed. p. 22, it is stated that "the fruit of the Umbelliferae is in no case dangerous." In the 'Pharmaceutical Journal' of this month, p. 337, Dr. Pereira mentions the case of a gentleman who suffered severely from having drank an infusion of anise, in which some seeds of *Conium maculatum* were detected. From the expressions used by the Dr. I presume that they were not numerous. It appears to me very desirable that the point should be set at rest. Dr. Maton is quoted by Paris in his Pharmacologia, as stating that the value of *Extractum Conii* is much increased by including the seeds in the preparation. If any confidence is to be placed in the case detailed by Dr. Pereira, which is taken by him from the 'Journal de Chimie Medicale' for August, 1842, it would appear that an infusion of the seeds is infinitely more powerful than the extract usually procured in commerce, since Dr. John Davy has administered the latter in drachm doses daily, with scarcely any untoward symptoms.—*Geo. Sparkes; Bromley, Kent, November 5, 1842.*

243. *On the folia accessoria of Hypnum filicinum*, Lin. A short time ago, whilst walking along the banks of one of our rivers, I happened to take up a tuft of that state of *Hypnum filicinum* which has been called *H. fallax* by Bridel, and on scrutinizing it with my pocket-lens, was surprised to observe, scattered here and there on the stem, several minute leaflets, scarcely one tenth so large as the true leaves, but yet resembling them in appearance. I brought the tuft home with me, and took an early opportunity of examining it with the microscope. I found these "folia accessoria" to occur chiefly towards the summit of the main stem, and more sparingly on the principal branches. In shape they are lanceolate, denticulate at the margins (*a*), nerveless (so far as I have observed), more delicate and with a wider reticulation than the true leaves. Sometimes they stand singly, as in figures *b, c, d*; not unfrequently several are found near each other, when they are smaller than usual; but most generally they stand in pairs, one leaflet partially overlying the other (*e f*). I observe them to be si-

tuated indifferently near the base or in the axil of a leaf, so that they cannot be considered stipules; but their most usual position is midway between two consecutive leaves.



Accessory leaves of Hypnum filicinum.

a—c. Accessory leaves standing singly. *d.* Accessory leaf and radicles. *e, f.* Accessory leaves occurring in pairs. *g* Leaf of a branch bud. All the figures are magnified.

My first impression was that they were *branch-buds*; but the *true* branch-buds, which exist copiously on elongations of the stems, are first displayed as little bulbs bursting forth from the stem, and are composed of closely packed and very minute leaves, of the shape represented at fig. *g*. Afterwards, remarking that the folia accessoria were confined to the upper part of the stem, while the lower part was profusely clothed with radicles. I thought it barely possible that the former might pass into the latter; but after a very careful scrutiny I detected several instances of the two organs occurring intermixed, and each preserving its characters unaltered; thus, the radicles, in their most rudimentary state, were jointed cylinders of a deep brownish-purple hue; while the accompanying folia accessoria were pale green, cellular, foliaceous expansions: an instance of their conjunction is figured at *d*. I may add that the folia accessoria are more abundant on the upper, the radicles on the under part of the stem. These peculiar appendages I believe have been hitherto unnoticed, although they certainly exist in every state of *Hypnum filicinum* with which I am acquainted; it is, however, singular that they should be absent from the very nearly allied species *H. commutatum*, at least my specimens do not show them. It is by no means improbable that other species of *Hypnum* may possess folia accessoria, which, from their minuteness, have been overlooked by previous observers; and perhaps this brief account of what I have myself noticed, may induce some of your correspondents, who have a love for musco-

logy, to make more extensive observations with a view of ascertaining the fact.—*Richard Spruce, F.B.S.E.; York, November 16, 1842.**

244. *Information on Byssus barbata*, Eng. Bot. Your correspondent Mr. Lees requests information respecting *Ozonium auricomum* (Phytol. 428), the *Byssus barbata* of Withering and early English authors. This production was first denominated *Ozonium auricomum* by Link in 'Berlin Magazin,' and this generic title was confirmed by Persoon in the 'Mycologia Europæa.' It is not introduced in the second part of vol. v. of 'English Flora,' because Fries, Berkeley, and all the best mycologists of the present day, consider it best to exclude this and other doubtful productions from the catalogue of Fungi. The fructification of *Ozonium* is quite unknown, and this singular plant is believed to be an abnormal and barren state of some other Fungus, probably a *Thelephora*. I have sometimes fancied it bore some resemblance to *Thelephora hirsuta*, but this plant only grows on rotten wood and stumps of trees, whilst *Ozonium auricomum* is occasionally found on damp walls. The figure in Withering of its supposed fructification represents nothing possible. Although I fully concur in the propriety of excluding this plant, with the *Rhizomorphæ* and similar puzzling articles, from the body of mycological works, they are too interesting to be passed over without notice, and might, I think, be described in an Appendix, especially as most young fungists are disappointed by finding no mention made of them. Mr. Lees will find an admirable figure of *Ozonium auricomum* in Greville's 'Scottish Cryptogamic Flora,' iv. tab. 260; the description by Dr. G. contains all that is known concerning its structure, with the synonymy from the time of Dillenius upwards.—*H. O. Stephens; 78, Old Market-street, Bristol, December 2, 1842.*

245. *On the narrow-leaved Hypericum perforatum*. The narrow-leaved variety of *Hypericum perforatum* noticed in 'The Phytologist' for this month, (Phytol. 427), has been long known to me as a native of this island, where it is far from uncommon in similar situations with the ordinary form of the species, into which it passes by insensible gradations. Indeed the broad-leaved and normal state of *H. perforatum* is decidedly uncommon with us, though such a plant does occasionally occur, and makes a certain approach to *H. dubium* of Smith, in having but few pellucid dots upon the leaves, and one or more of the sepals is elliptical, oblong and obtuse, while the remainder preserve their usual acuteness of termination. I have never gathered the real *dubium* in flower, but I possess dried specimens in that state from others, and I found at Mucruss in October last what I take to be the genuine plant of 'English Botany' &c., but quite out of bloom, having *all* the sepals elliptical-oblong, rounded at the tip, and somewhat recurved; in habit the Irish plant was more like *H. quadrangulum* than *H. perforatum*, so similar indeed that I did not readily distinguish the two as they grew together, until more closely examined. My kind and liberal friend, Dr. Wood of Manchester, has pointed out to me since then the strongly marked pellucid reticulations of the leaves in *H. dubium*, when viewed by transmitted light, as affording an excellent character, in addition to those previously laid down for distin-

* Since writing the above, I have received a communication from Dr. Taylor (in answer to a letter enclosing *Hypnum filicinum* with folia accessoria), wherein he observes—"the name *filicinum* seems to have been applied almost prophetically to this species, which alone possesses these cauline scales that remind one of the ferns; they probably perform the same functions as the leaves, and yet they appear to be universally without nerves."—*R. S.*

guishing this rather obscure or ill understood species from the common *H. perforatum*. I collected seeds of the Killarney dubium for the purpose of testing its immutability under cultivation. The breadth of the leaves in our narrow forms of *H. perforatum*, varies extremely, as I before observed, being sometimes quite linear, more frequently however linear-oblong or linear-elliptical, with deflexed margins; in height, erect habit, and corymbose inflorescence, this variety agrees exactly with that described by Mr. Westcott. Besides being the *H. veronense* of Schrank, our variety seems to be the *H. stenophyllum* of Opitz, Winn. et Grab. Fl. Siles. ii. 82; *H. perforatum*, δ . angustifolium, Gaud. Fl. Helv. iv. 628; whilst our less common broad-leaved state I suppose identical with Gaudin's *H. perforatum*, β . latifolium, l. c. s., and of Koch in the enlarged edition of Röhling's 'Deutschland's Flora,' Vter band. s. 349, a work unequalled for laborious research and accuracy of detail. Gaudin's description of our narrow leaved *perforatum*, leaves no doubt that his Swiss plant is absolutely the same as the British one. — *Wm. Arnold Bromfield*; * *Eastmount, Ryde, Isle of Wight, December 3, 1842.*

246. *Curious state of Carex panicea.* I have lately received a curious variety of *Carex panicea*, which I do not find noticed in any work on British plants. It differs from the common state of the plant in having *double perigynia*, the second or upper ones with their peduncle passing through the orifice of the first or lower ones; the lower perigynia also have the usual number of stigmas. As such forms are not common amongst the Carices, perhaps it may be interesting to some of the readers of 'The Phytologist' to know that they do occasionally occur. The plant was found at Bristol, in June, 1842, by Miss Wood, Liverpool-road, Islington, to whom I am indebted for the specimen.—*Samuel Gibson*; *Hebden Bridge, December 5, 1842.*

247. *Hierochloe borealis*, (Phytol. 426). In August, 1836, I went with a party of botanists to seek for this plant in *Glen Cally*, which is within three or four hours' walk from the Spittle of Glen Shee. Unfortunately we set out in the afternoon, and did not reach the place until the day was far spent; so that before we had penetrated the recesses of the Glen, the evening shadows warned us to depart. The fatigues and the dangers of our return by a shorter but untried route across the mountains, and our descent long after sunset, will not soon be forgotten. Had time permitted, I have no reason to think that we should have been unsuccessful in our search for this plant.—*W. Wilson*; *Orford Mount, near Warrington, December 10, 1842.*

248. *Supposed new British Fern.* On recently comparing the specimens of *Adiantum Capillus-Veneris*, gathered by Mr. Ward at Ilfracombe in Devonshire, in 1840, with one from the Isles of Arran, given to me when Ireland, by Mr. Reilly of Galway, I found a marked difference in the general character and habit of the two plants; and on closer inspection I discovered in the footstalks of the leaves a difference which appeared perfectly constant, so far as the specimens before me are concerned. In the Arran specimen each pinnule is articulated to a somewhat capitate footstalk, from which it may be separated by a very slight touch: in this character as well as in the form of the pinnules, it appears identical with a common West Indian species which I suppose to be the *Adiantum fragile* of Willdenow's 'Species Plantarum.' My object in publishing this supposed discovery in its present crude form, is to invite those botanists who happen to possess specimens from both localities, to compare them, with a view of establishing or disproving my conjecture.—*Edward Newman*; *December 10, 1842.*

* In a letter to E. Newman.

ART. CXIII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Wednesday, December 7.—Prof. Christison in the chair. The election of office-bearers for the season took place:—Dr. Neill, President; Professors Christison, Graham, Balfour and D. Stewart Esq., Vice-presidents. Various parcels of plants were announced, also donations to the library from Dr. Müller of Emmerich, Dr. Maly, &c.

Professor Christison then submitted to the Society a highly interesting communication on the Assam tea-plant, illustrated by specimens. The author stated that the different kinds of tea were produced by different modes of preparation, and showed by a series of examples of the preserved tea-leaf, that the various forms were merely varieties of the same plant. A specimen of tea, of a yellow colour, and of a remarkably strong flavour, was exhibited; also tea, in the form of small rolls, sent to this country about twenty years ago, as a present from the Emperor of China to George IV.

Mr. Goodsir then read a paper by Charles C. Babington, Esq., F.L.S., F.G.S., entitled "Observations upon a few plants, respecting the claim of which to be considered as natives of Great Britain, Sir W. J. Hooker expresses doubt in the 5th edition of his 'British Flora,' with a few notes upon other species contained in that work, with reference to the Edinburgh 'Catalogue of British Plants.' The object of this paper was to show upon what evidence the authors (Professor Balfour, Mr. Babington himself, and Dr. Campbell) of the Botanical Society's 'Catalogue of British Plants' had included in it the species concerning which Sir W. J. Hooker expresses doubt. "I cannot allow this opportunity to pass," says the author of this paper, "without expressing the great satisfaction which it gives me to see that so distinguished a botanist as Hooker has considered the catalogue deserving of quotation *throughout his work*, as I must consider it a proof that the compilers of the 'Catalogue of British Plants' have not produced a work discreditable either to themselves or to the Society that intrusted its preparation to them."

Mr. Brand afterwards read to the Society a "Notice of the presence of Iodine in some plants growing near the sea," by G. Dickie, M.D., Lecturer on Botany in the University and King's College, Aberdeen. The author found, by chemical examination of specimens of *Statice Armeria*, from the sea-shore, and of others from the inland and higher districts of Aberdeenshire—that the former contained iodine, and that soda was more abundant in them, while potass prevailed in the latter. Iodine was also found in *Grimmia maritima*, and Mr. P. Grant of Aberdeen, has found it in *Pyrethrum maritimum*. An analysis was made of examples of *Statice Armeria*, *Grimmia maritima*, *Lichina confinis* and *Ramalina scopulorum*, all growing near the same spot, and occasionally during storms exposed to the sea spray; and all these plants, with the exception of the lichen, contained iodine. The specimens having been washed previous to analysis, the iodine could not have been derived from saline incrustation. All these vegetables were healthy, and the author of the paper has been led to conclude that marine Algæ are not the only plants which possess the power of separating from sea-water the compounds of iodine, and of condensing them in their tissues, and this without any detriment to their healthy functions.

BOTANICAL SOCIETY OF LONDON.

November 18.—Adam Gerard Esq. in the chair. Donations of British plants were announced from Miss S. B. Hawes and Miss S. K. Barnard. The continuation of the paper commenced at the last meeting, on the *Lodoicea Sechellarum*, by George Clark, Esq., was read.

The *Lodoicea Sechellarum* is an intertropical plant peculiar to the Sechelles Archipelago, where it grows naturally in two islands only, Praslin and Curiense. Praslin lies to the north-east of Mahé, distant twenty-one miles; Curiense to the north of Praslin, and is much smaller: a deep arm of the sea, from one to two miles in breadth, separates these two islands. They lie between $4^{\circ} 15'$ and $4^{\circ} 21'$ S. latitude, and $55^{\circ} 39'$ and $55^{\circ} 47'$ E. longitude. In the other islands of the Archipelago there are but few *Lodoiceas*, which have all been planted, and only two or three appear to thrive.

The trunk or stem is straight, and rises to the height of 80 or 90 feet, and is terminated by a splendid crown of winged palmated leaves; it is only from 12 to 15 inches in diameter, and so flexible that it waves to the slightest breeze. When the wind is moderately strong, the huge leaves of this giant palm are clashed together with an astonishing noise. The outside of the stem is very hard and compact, while the interior is soft and fibrous. The leaves, winged and palmated, open like a fan, and in their early growth are more than 15 feet long, without reckoning the foot-stalk, which is at least as much more. In the mature trees the leaf-stalk is not more than 8 or 10 feet long, and the whole leaf does not exceed 20 feet in length by 10 or 12 in breadth, and is entirely destitute of thorns. The nascent leaves are enveloped till the period of their expansion by a thick covering of cottony down, of a nankeen colour; but this is occasionally wanting. The unanimous testimony of the inhabitants of Praslin proves that each tree produces only one leaf a-year; and "as three leaves occupy about 8 inches of the trunk, and twenty years expire before that appears above the surface, a tree of eighty feet in height must be about four hundred years old." The flowers, about twenty in number, succeed each other one at a time, occasionally there are two together. The nuts are two-lobed, and sometimes two nuts are enclosed in one husk; three-lobed nuts are very rare, but some are met with, and it is said that specimens with five lobes have been found. The form of the nut is very singular, and cannot be compared with that of any other production of the vegetable kingdom. Two highly remarkable circumstances in the history of the *Lodoicea* are the duration of its blossoms and the period necessary for maturing its fruits; for the latter purpose seven or eight years are required. The *Lodoicea* grows in every variety of soil, but delights most in the vegetable mould of the deep gorges of the mountains. It is nevertheless found on the bare mountain tops, and forms a very conspicuous and remarkable object in such situations. It is curious that the vegetation of the nut should be prevented by its being buried, but if suffered simply to rest on the earth, in a situation not too much exposed to the sun, germination readily takes place. The purposes to which the produce of the *Lodoicea* is applied are numerous. The fruit, in its simple state, is an agreeable and refreshing aliment; when ripe it yields oil; its germ furnishes a very sweet food. Of the shell are made vessels of various shapes and sizes, that serve the Sechellois for nearly all domestic purposes. The entire nut is an article of commerce with India, where one of its uses is as an astringent medicine. The trunk is employed in building; split and hollowed it forms excellent gutters and paling; the leaf-stalks also are used for the latter purpose. The leaf forms a covering for roofs nearly as good as shingles, besides furnishing materials of a very superior description for hats, bonnets, wood-baskets and artificial flowers, in the manufacture of which many of the Sechelloises display great taste and skill. And lastly, the cottony down which covers the leaf previously to expansion, is a very good stuffing for pillows and mattresses. — *G. E. D.*

THE PHYTOLOGIST.

No. XXI.

FEBRUARY, MDCCCXLIII.

PRICE 1s.

ART. CXIV. — *Note on Fucus Mackaii of Turner.*
By ROBERT KAYE GREVILLE, Esq., LL.D.



Fucus Mackaii, Turner.

FUCUS MACKAI, a species established in the absence of fructification by the acute Turner, is reduced by Agardh to a mere variety of *F. nodosus*; and, it must be confessed, not without apparently good reason. The plant occurs in its different localities in extraordinary profusion, and strongly resembles some states of *F. nodosus*, so closely

indeed as scarcely to be distinguished from them. In the autumn of the present year I collected specimens of the latter plant, in Loch Ryan, which I thought conclusively established Agardh's view of the question. A few days afterwards, however, I was most agreeably surprised to observe in the collection of Mrs. Captain Maynard, at Stranraer, a specimen of *Fucus Mackaii* bearing receptacles; so that the doubts which have so long hung over this interesting plant, are now at an end.

The specimen (I regret to say it was a solitary one) was communicated to Mrs. Maynard by Dr. Lindsay from the Isle of Skye.

The specific character of *Fucus Mackaii* may now be expressed as follows. Frond coriaceous, cylindrical or subcompressed, linear, irregularly dichotomous: vesicles (when present) innate, elliptical, solitary; receptacles in pairs, ovate-oblong, terminating the lateral branches.

The annexed figure, copied from the drawing which I made at the time, of this unique specimen, will render any further description unnecessary.

R. K. GREVILLE.

Edinburgh, December, 1842.

ART. CXV.—*Note on a supposed New British Cuscuta*; by CHARLES C. BABINGTON, Esq., M.A., F.L.S., F.G.S. *Communicated, with Additional Observations*, by G. S. GIBSON, Esq.*

I FULLY intended to forward C. C. Babington's notes on the *Cuscuta* (Phytol. 412), but have delayed doing so in the hope of obtaining clearer information as to the country from which the clover-seed came; but after considerable enquiry have not succeeded satisfactorily. The following are C. C. B.'s remarks upon it, any part of which you are of course at liberty to insert in 'The Phytologist.'

"I this morning received your letter, and immediately submitted the *Cuscuta* to the microscope. It certainly differs considerably from *C. Epithymum*, and I suspect will prove to be a new species, for I can find no notice of it in the continental works. I am not, however, prepared to give it as new, without more acquaintance with it than I have yet obtained. I believe that *C. Epithymum* is confined to shrubby plants, such as *Ulex*, *Erica* and *Thymus*. I add the cha-

* In a letter to E. Newman.

rafter of the plant, according to my present ideas, and have underlined the points in which I believe it to differ from *C. Epithymum*.* The provisional name that I have adopted is *C. Trifolii*.

“*C. Trifolii*, (Bab. MSS.) Clusters of flowers bracteated, sessile : tube of the corolla cylindrical, *limb erect*, scales palmately cut, converging ; *calyx nearly or quite as long as the corolla*. *Calyx* and corolla *whitish*, with acute segments.

“I had heard of a *Cuscuta* destroying the clover in Norfolk and Suffolk, but have never before been able to obtain specimens. I look upon it as very desirable that attention should be called to the plant, as it threatens to become a troublesome weed in fields, to which it has probably been introduced with clover-seed from the continent.—Could you ascertain if it was known on clover before recent years, and if the clover-seed was of English growth, or from what country obtained ? I think that this query may, if it produce a decided answer, be of much agricultural value.”

All the particulars which I have been able to ascertain, are the following.

The clover-seed was bought by the farmer of a factor at Stortford, who distinctly states that it was foreign seed, but cannot tell from what part it came. The same farmer states that he noticed this *Cuscuta* on clover in one of his fields about twelve years ago, but has not since observed it till this year. In the adjoining part of Suffolk, it was a troublesome weed in several places, covering the clover to a considerable extent, and greatly injuring the crop ; this seed had been grown in England the previous year, and in this neighbourhood, but probably might have originally come from abroad, which I am anxious to ascertain, but fear the requisite information can scarcely now be obtained. Perhaps if the notice of the readers of ‘The Phytologist’ be called to the subject, some more satisfactory result may be arrived at. Should I hear any further particulars I intend to communicate them.

G. S. GIBSON.

Saffron Walden, 3rd of 1st Month, 1843.

[Mr. Babington requests us to add that he would be much obliged to any person who would send for examination specimens of *Cuscuta* from clover, addressed to him at St. John’s College, Cambridge.]

* These are the parts printed in *Italics*.—Ed.

ART. CXVI. — *Contributions towards a Flora of the Breadalbane Mountains.* By WM. GARDINER, JUN., Esq.

THE plants enumerated in the following list were collected between the 28th of June and the 19th of July, 1842, on that wild and rugged mountain range which extends along the shores of Loch Tay from Kenmore to Killin, and of which the mighty mass of Ben Lawers forms the most prominent feature, rising to an altitude of 4015 feet above the sea-level. At the base of this mountain a little inn has been most conveniently placed, from which to the summit the distance is reckoned about five miles, and is usually attained with less than three hours' moderate climbing. Once at the top, the toil is amply compensated, if the mist be absent, by the magnificent panorama of the "land of the mountain and the flood" that is spread around. There are many fine sights in Breadalbane: the splendid waterfalls at Aberfeldy, Acharn, Boreland and Lawers; —

"Th' outstretching lake, imbosom'd 'mong the hills:—"

the romantic grounds of Taymouth: —

"The Tay meandering sweet in infant pride,
The palace rising on his verdant side;"—

the quiet pastoral beauty of Glen Lochy, and the never-tiring picturesque scenery of Killin. But all these taken together fall short of producing such an interest as one feels while enjoying, in a clear sunny day, the vast prospect of alpine grandeur from the summit of Ben Lawers; and the tourist who neglects this sight, although he has beheld the rest, misses what is most worthy of being seen. To the botanist Ben Lawers has additional charms. He seldom climbs it in the prescribed period of three hours, for almost at every step, beauty, in some form or other, beckons him to stoop and examine its charms. His pleasure is not on the summit alone, and therefore to him the ascent is not so toilsome. He walks, as it were, through a botanic garden, each compartment, as he ascends its lofty terraces, presenting him with a fresh banquet of new and lovely forms, unknown to the plains, and as he takes leisure to enjoy them, the health-giving breezes circle round him. The mountain-bee with its merry hum leads him to many a hidden gem; and the babbling streams ever and anon are telling him of the floral treasures of their banks. He is diligent as the bee, happy as the sparkling stream. Yet no earthly happiness is without its alloy; and rambling on Ben Lawers, whether the tourist be botanist or not, he will meet with shady moments as well as

bright ones. If the sun beats strong and the air is dry, his face gets tanned and his ears blistered. If the mist comes on, and he has no compass nor guide, he runs the risk of losing himself, and descending the wrong side of the mountain. If he is overtaken by a Highland shower, he is positively certain of being thoroughly drenched to the skin; and if he has lacked the foresight to provide a spare suit to exchange for his wet one on reaching his inn, his plight will be pitiful. Moreover, he will occasionally have the comfort of getting over the ancles in a bog, of being stung by an angry wasp, or of having his blood painfully abstracted in various ways by tiny demons in the shape of insects. Yet after all, these are but trifles when we look them lightly in the face, and consider what a vast amount of pure delight is derivable from the contemplation of Nature, either in her minute details of vegetable and animal structure, or in her more general features of landscape scenery.

Thalictrum alpinum. Plentiful on Ben Lawers and the other mountains in the Breadalbane range, growing on the marshy banks of rills, as well as on wet rocks.

——— *minus*, *β. majus*. On the banks of Loch Tay.

Anemone nemorosa and *Trollius europæus*. These two beautiful denizens of our woods, the one with its delicately-tinted drooping flowers, and the other with its swelling globes of vegetable gold, adorned the wild and lofty rocks of Stuich-an-Lochan, and were greeted with all the rekindled warmth of early friendship. Stuich-an-Lochan is a wild rocky mountain, rising almost perpendicularly from the dark waters of Loch-na-Gat, and connected with Ben Lawers, of which it is generally considered a part, by the yet more fearful cliffs of Craig-na-Hein. It is one of the richest botanical fields in Breadalbane.

Cochlearia grœnlandica. Plentiful about the summit of Ben Lawers, varying much in size, and in the colouring of the flowers and foliage.

Draba rupestris. In the crevices of rocks about the summit of Ben Lawers, but not in great quantity.

——— *incana*. More or less abundant on the rocky summits of Ben Lawers, Stuich-an-Lochan, Mael Tarmanach, Mael Greadha, and Craigalleach; varying from two inches to nearly a foot in height.

Arabis hirsuta. On the rocks of Stuich-an-Lochan, in fruit.

Silene acaulis. Abundant on all the Breadalbane mountains, at a good elevation, forming here and there a beautiful sward, glowing with its myriad blossoms of vivid red.

Lychnis diurna. On Stuich-an-Lochan, showing another example of low-ground plants seeking a high altitude.

Spergula saginoides. Rocky banks on Ben Lawers and Stuich-an-Lochan.

Alsine rubella. Very sparingly on crumbling rocks, at the summits of Ben Lawers and Mael Greadha.

Cerastium alpinum. Scattered profusely over all the range, and varying considerably in its degree of pubescence.

Cherleria sedoides. Abundant, and often forming widely extended patches.

Geranium sylvaticum and *pratense*. Plentiful in various situations, high on the mountains as well as at their bases.

Oxalis Acetosella. Stuich-an-Lochan could also boast of this graceful little gem of Flora, which recalled one from the sultry heat of July, and these perilous alpine rocks, to the soft luxury of the woodland in the merry month of May.

Anthyllis Vulneraria. Ben Lawers and Stuich-an-Lochan.

Vicia sylvatica. Den of Lawers, below the Falls.

Dryas octopetala. A single specimen without flower was picked on Stuich-an-Lochan.

Geum rivale. This, which is another species common on low grounds, occurred frequently in marshy places among the rocks of Stuich-an-Lochan.

Rubus saxatilis. On the same mountain, but not common.

—— *Chamæmorus*. Abundant on the peat-bogs and moory ground of Ben Lawers, both in flower and fruit. The latter, which are called *Avrons* by the shepherds, are esteemed for their nutritious properties as well as for their agreeable flavour. I had good reason to prefer the name of *cloud-berries*, for my specimens were culled amid the fleecy drapery of the heavens that mantled the mountain in their misty folds.

Potentilla alpestris. Not uncommon on the rocky ledges of Stuich-an-Lochan.

Sibbaldia procumbens. On the summits of all the mountains.

Alchimilla alpina. Plentiful everywhere, from the bases to the summits of the mountains, but most luxuriant where its bunches of elegant silvery foliage depend from the crevices of a rock in the immediate vicinity of one of those beautiful miniature cascades that are so numerous on an alpine rivulet.

Epilobium angustifolium. Margin of the Lochy, near Killin, imparting to the banks of that still and beautiful stream a peculiarly interesting aspect of floral grandeur, from the richness of its numerous handsome spikes of crimson blossoms.

—— *alpinum*. Marshy banks of springs and rivulets on all the mountains, generally gracefully drooping both in flower and fruit.

Circæa alpina. Moist banks near the Falls of Lawers, and in stony places shaded by trees on the banks of Loch Tay.

Sedum anglicum. On a rocky bank near Lawers, but scarce.

—— *villosum*. Growing rather sparingly on a marshy bank by the side of a stream about half way up Ben Lawers. It was also picked on a wet wall by the wayside in Glen Almond.

—— *Rhodiola*. Crevices of moist rocks on most of the mountain summits, but not so luxuriant as I have found it among the Clova mountains.

Saxifraga stellaris. Plentiful both in wet and dry places, and varying from half an inch to four or five inches in height.

—— *nivalis*. More or less abundant on the summits of Ben Lawers, Stuich-an-Lochan, Mael Tarmanach, Mael Greadha, and Craigalleach, growing in the clefts of rocks. Some of it had simple stems, others branched; and more of it was in fruit than flower.

—— *oppositifolia*. Frequent in the crevices of rocks, but its early and elegant purple blossoms were nearly gone.

—— *aizoides*. The constant ornament of all the alpine rivulets, but preferring a very moderate altitude, and even descending to the bottoms of the vallies.

—— *cernua*. This, the rarest and most interesting of the tribe, was found where

I gathered it in 1838, in the crevices of rocks and among debris, in a wild ravine near the summit of Ben Lawers, but it is now getting so scarce there, that unless picked with a sparing hand for some years to come, it will be in danger of being eradicated.

Saxifraga hypnoides. Plentiful.

Cornus suecica. Only a few specimens were picked on Ben Lawers, growing among *Rubus Chamæmorus*, in small boggy hollows.

Galium palustre, β . *Witheringii*. In marshy places by the side of Loch Tay.

—— *boreale*. Plentiful on the banks of Loch Tay in stony places, as well as in the Den of Lawers, by the side of the Lochy, and even on the rocky ledges of the lofty Stuich-an-Lochan.

Thrinicia hirta. On Stuich-an-Lochan.

Crepis paludosa. About the Falls of Lawers &c.

Hieracium murorum, γ . *Lawsoni*. Rocks of Stuich-an-Lochan.

—— *prenanthoides*. Den of Lawers, but little of it in flower.

Saussurea alpina. Frequent, though not plentiful, on the rocky shelves of Stuich-an-Lochan.

Carduus heterophyllus. Abundant in the Den of Lawers, on the banks of the Lochy, and various other places, some of its beautifully ciliato-dentate cottony leaves measuring more than a foot in length.

Gnaphalium dioicum. On the heaths, abundant.

—— *supinum*. In still greater profusion than the last, preferring bare earthy or dry rocky banks, and by no means confined to the summits of the mountains, but extending often to within a few hundred feet of their bases.

Erigeron alpinus. In tolerable plenty on the rocky ledges of Stuich-an-Lochan, generally with one flower, but occasionally with two or three.

Solidago Virgaurea, β . On the same mountain.

Vaccinium uliginosum. On boggy heaths about Loch-na-Gat, and several other places, but bearing no flowers.

Pyrola media. Picked a specimen or two about the Falls of Boreland in Glen Lochy, but past their prime.

Gentiana nivalis. A single specimen of this alpine rarity was culled on Stuich-an-Lochan, but several without flowers were left.

—— *campestris*. Plentiful on Ben Lawers.

Myosotis alpestris. On Ben Lawers and Stuich-an-Lochan in considerable abundance, gracing the rocks with its rich cærulean blossoms, than which none of our mountain flowers are more exquisitely beautiful.

Veronica serpyllifolia, β . *alpina*. In profusion in marshy places about springs and the sides of streams.

—— *saxatilis*. On the rocks of Stuich-an-Lochan and Craig-na-Hein, but in small quantity. This is a perfect gem, and its large, brilliant, though delicate corolla is well worth a long day's journey to look at.

Euphrasia officinalis. A variety with deep-coloured flowers and foliage was plentiful in the mountain-pastures, and in the valleys the usual pale-flowered state frequently attained a height of nearly a foot, with a more or less branched habit.

Melampyrum pratense and *sylvaticum*. In the Den of Lawers.

Digitalis purpurea. One of the most common and showy wild flowers in the Highlands.

Galeopsis versicolor. Common in the cornfields about Lawers.

Clinopodium vulgare. Banks of Loch Tay.

Armeria maritima, β . *alpina*. Summits of Ben Lawers and Stuich-an-Lochan.

Polygonum viviparum. Plentiful in the Den of Lawers, and in various places on the mountains.

Rumex alpinus. In waste places, Lawers, but without flowers this season. In 1838 I culled a specimen in the same locality, bearing flowers.

Oxyria reniformis. Abundant by the sides of the mountain streams.

Salix pentandra. In Glen Almond, with fertile catkins.

— *reticulata*. Plentiful on the summits of all the mountains, loving best to grow on the sides of perpendicular rocks.

— *arenaria*. By the sides of streams on Ben Lawers.

— *cinerea*. About the falls of Boreland, the bank of Loch Tay, and by the side of Loch Frenchie in Glen Quech, varying very much in size and foliage.

— *oleifolia*. Banks of Loch Frenchie.

— *aurita*. Glen Quech.

— *caprea*. Common in many places and very variable.

— *Andersoniana*. Craigalleach, rare.

— *tenuior*. Banks of the Lochy, near Killin, but not in great plenty.

— *radicans* and *Weigeliana*.

— *bicolor*. Plentiful about Loch Tay, and in Glen Quech, but without catkins.

— *phyllgrefolia*. On the banks of Loch Tay near Lawers.

— *herbacea*. Abundant on the rocky mountain summits, but finest on Stuich-an-Lochan.

Myrica Gale. In moory ground about the base of Ben Lawers, scenting the air with its rich and agreeable odour.

Tofieldia palustris. On Stuich-an-Lochan, Ben Lawers, Mael Tarmanach, &c.

Juncus trifidus. Near the summit of Ben Lawers, but poor starved specimens compared with those found at Clova.

— *biglumis*. On Ben Lawers, Stuich-an-Lochan and Mael Greadha, but in very small quantity.

— *triglumis*. Plentiful in marshy places on all the mountains, and varying with from two to four capsules.

Luzula spicata. In profusion on the rocky summits of all the Breadalbane range.

Narthecium ossifragum. In boggy places, common.

Gymnadenia conopsea. On Ben Lawers, frequent, and telling of its whereabouts by bribing the zephyrs with its aromatic breath.

— *albida*. On grassy banks near Larich-an-Lochan.

Habenaria viridis. On Stuich-an-Lochan.

Anthoxanthum odoratum. This adventurous inhabitant of our meadows I found near the lofty summits of Ben Lawers and Craigalleach.

Phalaris arundinacea. On the banks of the Lochy.

Aira cæspitosa and *flexuosa*. Alpine states of these plants occurred on Ben Lawers and Craigalleach.

Melica uniflora. In the Den of Lawers.

Molinia cærulea, β . *alpina*. On the banks of Loch Tay, and by the sides of streams on Ben Lawers.

Arrhenatherum avenaceum. Den of Lawers, &c.

Sesleria cærulea. On the rocky ledges of Craigalleach.

Poa alpina. Common on all the mountains, and viviparous.

— *nemoralis*. Banks of Loch Tay.

— *cæsia*. Rocks of Stuich-an-Lochan.

Festuca ovina, *ε. vivipara*. Frequent.

Avena alpina. Rocky ledges of Stuich-an-Lochan and Ben Lawers.

Eriophorum gracile. Ben Lawers. Evidently a dwarf and slender state of *E. angustifolium*.

Carex pulicaris. On Ben Lawers.

— *curta*. Ben Lawers, &c.

— *intermedia*. Near Ben Lawers Inn, in a marshy spot.

— *atrata*. On the ledges of Stuich-an-Lochan, not uncommon.

— *rigida*. Rocky summits of all the mountains.

— *saxatilis*. In marshy places on Stuich-an-Lochan and Mael Greadha.

— *flava*, *pallescens* and *paludosa*. Den of Lawers.

— *capillaris*. Marshy places on Stuich-an-Lochan, Mael Greadha & Craigalleach.

Polypodium Phegopteris. Abundant in various places.

— *Dryopteris*. Den of Lawers.

Polystichum Lonchitis. In the clefts of rocks on all the mountains, but the specimens not so luxuriant as those found on the Forfarshire mountains.

— *lobatum*. Den of Lawers, near the Falls.

Lastræa Oreopteris. Plentiful in the Den of Lawers.

Cystopteris fragilis and *β. dentata*. On moist rocks about the Falls of Lawers.

Asplenium viride. Crevices of wet rocks about the Falls of Lawers, in great profusion. This beautiful little species loves to vegetate in the immediate vicinity of waterfalls, though in 1838 I found a few plants in the shady cleft of a rock near the summit of Ben Lawers.

Hymenophyllum Wilsoni. Moist rocks about the Falls of Lawers, covering them with broad patches of its beautiful and delicate fronds.

Botrychium Lunaria. On Stuich-an-Lochan, sparingly.

Lycopodium selaginoides, *alpinum* and *Selago*. Plentiful on Ben Lawers and others of the range.

Equisetum palustre, *β. alpinum*. On Ben Lawers and Craigalleach.

Andræa alpina. Abundant and in fine condition about the summits of Stuich-an-Lochan, Ben Lawers, Mael Tarmanach and Mael Greadha.

— *rupestris* and *Rothii*. Ben Lawers.

— *Gymnostomum lapponicum*. On Ben Lawers and Mael Tarmanach.

Anjctangium ciliatum. In the Den of Lawers and many other places, common.

Diphygium foliosum. Ben Lawers.

— *Splachnum sphæricum*. Ben Lawers.

— *nnioides*. On the same and all the other mountains of the range.

Conostomum boreale. Abundant and in fine perfection near the summit of Mael Tarmanach, covering a space of several yards. Sparingly on the other mountains.

Encalypta ciliata and *rhaptoearpa*. More or less diffused over the whole range.

Weissia crispula. Ben Lawers, plentiful.

— *acuta*. Wet rocks, common.

Didymodon rigidulus. Ben Lawers.

— *capillaceus*. In dense tufts in the clefts of rocks, abundant. Var. *β. ithyphylla*. Wet rocks in the Den of Lawers.

Didymodon longirostris. Mael Tarmanach and Mael Greadha.

✓ *Trichostomum patens*. Abundant on Ben Lawers.

———— *canescens*, *microcarpon*, *aciculare* and *fasciculare*. Ben Lawers.

———— *polyphyllum*. Rocks on the banks of Loch Tay.

✓ *Dicranum virens*. Ben Lawers and Mael Gradha.

✓ ——— *falcatum*. In the greatest profusion on Ben Lawers.

———— *Starkii*. Ben Lawers, but much less common than the last.

———— *flavescens*. Sandy deposits by the sides of Lawers-burn.

———— *scoparium*, γ . *fuscescens*. Mael Tarmanach &c.

———— *heteromallum* and *subulatum*. Ben Lawers.

Cinclidotus fontinaloides. On stones in Loch Tay.

✓ *Polytrichum hercynicum*. Frequent on all the mountains.

———— *juniperinum*, β . *gracilius*, (*P. strictum*, Menz.) In bogs on Ben Lawers.

———— *septentrionale*. On wet rocks near the source of a rivulet a little below the summit of Ben Lawers, on the north side, and new, I believe, to the district.

———— *alpinum*. The most common *Polytrichum* on the mountains, but most of my specimens were culled on the summit of Craigalleach, in the calm twilight of a summer's evening, after a day's laborious ramble over the whole range from Larich-an-Lochan. On the same spot (upwards of 3000 feet high) I last year had the misfortune to sprain my right ankle severely; and what I then suffered in the descent, and for two months after, would have cured many a one of botanizing for ever: but somehow or other, it only tended to increase my enthusiasm, and this prompted me in the present season to revisit that glorious mountain-altar, and there offer up to heaven grateful thanks for my recovery, and for the pure pleasure I continued to enjoy from the love of Nature's works.

Bryum trichodes. A single tuft near the summit of Ben Lawers.

———— *julaceum*. Falls of Lawers and banks of the Lochy, above the bridge, but in neither place bearing fructification.

———— *crudum*. Ben Lawers &c.

———— *Zierii*. Ben Lawers and Stuich-an-Lochan.

———— *turbinatum*. About the Falls of Lawers, hill of Kenmore, and other places.

———— *nutans* and *elongatum*. Ben Lawers.

———— *ventricosum*. Falls of Lawers, and about the Falls of Boreland in Glen-Lochy.

———— *demissum*. Mael Greadha, rare.

———— *punctatum*. In many places.

Bartramia pomiformis, β . *major*. Den of Lawers.

———— *ithyphylla*. On all the mountains.

✓ ——— *gracilis*. In fructification on Ben Lawers, Stuich-an-Lochan and Mael Tarmanach.

———— *fontana*. In bogs on most of the mountains, varying much in size. Some of the Ben Lawers specimens much elongated and elegantly slender.

Hedwigia æstiva. Plentiful but mostly barren. I last year culled it in fructification by the side of Fionlarig-burn on Craigalleach, and near a small waterfall in Glen Ogle.

Pterogonium filiforme. Abundant on the whole Breadalbane range, but barren.

Anomodon curtipendulum. Upon rocks in the woods of Glen Lochy, bearing fructification copiously.

Hypnum denticulatum, β . *obtusifolium*. Ben Lawers and other mountains.

Hypnum trifarium. This rare moss I found in a marshy spot near the summit of Ben Lawers, intermingled with *H. scorpioides*.

—— *moniliforme*. On Mael Greadha, sparingly.

—— *catenulatum*. Found while searching among the dark rocks of a *corrie* near the summit of Ben Lawers, on the west side, for *H. Halleri*. The latter eluded my search, but no wonder, for at the time the gloom and roar of a thunder-storm were over my head, and the hail seemed determined to pelt me off the ground.

—— *rufescens*. In broad flat patches on the moist rocks about the Falls of Lawers, and on Craigalleach.

—— *lutescens*. In several places, but barren.

—— *stellatum*. Falls of Lawers.

—— *rugulosum*. In broad masses on the rocky shelves of Craig-na-Hein.

—— *commutatum*. About the Falls of Lawers bearing capsules in profusion.

Marchantia hemisphærica. Abundant on the mountains, particularly on the rocky banks of streams.

Jungermannia furcata. Glen Lochy.

—— *spinulosa*. Falls of Lawers &c. bearing calyces.

—— *pumila*. Ben Lawers, in fruit.

—— *crenulata*. Ben Lawers.

—— *emarginata*. On all the mountains and extremely variable, some of it with calyces and fruit.

—— *inflata*, *excisa*, *nemorosa* and β . *purpurascens*. On Ben Lawers &c.

—— *undulata*, *albicans*, *Taylori*, *barbata* and *trilobata*. Ben Lawers.

—— *juniperina* and *julacea*. Plentiful on most of the mountains.

—— *platyphylla*, β . *major*. Glen Lochy.

—— *ciliaris*. Ben Lawers, &c.

Endocarpon miniatum. Wet rocks on the West Maelor, a secondary hill on the south ascent of Ben Lawers.

Lecidea geographica, *fusco-lutea* and *marmorea*. On Ben Lawers.

Lecanora ventosa and *tartarea*. On rocks, Ben Lawers.

Squamarea hypnorum. On earth and decayed mosses, Ben Lawers &c.

Parmelia caperata. Plentiful on old walls about Lawers.

—— *saxatilis* and *omphalodes*. On rocks and walls, common.

—— *Fahlunensis*. Rocks about the summits of Ben Lawers and Stulich-an-Lochan, but little of it in fructification.

Sticta pulmonaria. On trunks of trees in the woods of Fionlarig.

—— *serobiculata* and *fuliginosa*. On rocks in the woods, Glen Lochy.

Collema cheileum. Trunks of trees at Lawers.

Solorina crocea. Ben Lawers, on the summit as well as near the base.

—— *saccata*. Den of Lawers below the falls.

Peltidea aphthosa and *scutata* ? Ben Lawers.

Gyrophora cylindrica, *probovidea* and *pellita*. Rocks, Ben Lawers, principally towards the summit.

Cetraria glauca. Rocks, Ben Lawers.

—— *Islandica*. On boggy heaths near Loch-na-Gat, very luxuriant.

Ramalina fraxinea, *fastigiata* and *farinacea*. On trees, plentiful.

Alectoria jubata, β . *chalybeiformis*. On several of the mountain rocks.

Cornicularia aculeata, tristis and *lanata*. On Ben Lawers and Stuch-an-Lochan, the two latter species with apothecia.

Sphaerophoron coralloides. In Glen Lochy and many other places, and bearing fructification on the rocks near the summit of Ben Lawers.

————— *β. caespitosum*. On Ben Lawers.

Sterecaulon paschale, and what is usually called *botryosum*. On Ben Lawers &c., plentifully, but both so variable in form, and these forms so running into each other, that one is doubtful whether they may not after all constitute but one species.

Cladonia uncialis and *β. turgida*. Not uncommon on most of the mountains.

Scyphophorus cocciferus, gracilis, and several others, on Ben Lawers.

Pycnothelia Papillaria. On the same mountain, but rare.

WILLIAM GARDINER, JUN.

Dundee, December, 1842.

ART. CXVII.—*County Lists of the British Ferns and their Allies.*

Compiled by EDWARD NEWMAN.

(Continued from p. 455)

LANCASHIRE.

Lomaria Spicant. Common; *S. Gibson, W. Wilson, G. Pinder, J. Sidebotham, J. B. Wood*: near Liverpool, *S. Thompson*: abundant on moors near Lancaster, *S. Simpson*: common near Coniston, in wet gravelly situations, *M. Beever*: I am indebted to Miss Beever for magnificent specimens of this plant; they are of extraordinary size, and combine the characters of the fertile and barren fronds, *E. Newman*.

Pteris Aquilina. Common, *S. Gibson, G. Pinder, J. Sidebotham, J. B. Wood*: found in a very diminutive state, not exceeding three inches in length, upon the garden-wall at Knowsley, in 1840, *W. Wilson*: Penketh, *S. Thompson*: very common near Lancaster, *S. Simpson*: common near Coniston, *M. Beever*.

Allosorus crispus. Cliviger, in endless variety. Mr. Francis says that the sori are placed in lines along the transverse veins: I find them in dots at the termination of the veins, with the edge of the pinnule more or less turned over, forming a cover, sometimes however they are quite bare, and when in that state the plant might be considered a true *Polypodium*. Mr. Newman has observed that the character which distinguishes this plant from a true *Polypodium*, is that the fronds are both barren and fertile; but I find, that in common with all other *Polypodia*, it possesses not only barren and fertile fronds, but barren and fertile pinnæ on the same frond, and even barren and fertile pinnulæ on the same pinna, *S. Gibson*: near Lancaster, on the way to the Asylum, *W. Wilson*: Coniston, Old Man mountain, *G. Pinder*: among the rocks at Cliviger-dean, five miles from Todmorden, on the road to Burnley, (R. Leyland), *H. C. Watson*: Todmorden (*J. W. G. Gutch*), *H. C. Watson*: Fo-edge, near Bury, abundant, *J. Sidebotham*: abundant on moors near Lancaster, *S. Simpson*: common near Coniston, *M. Beever*: this beautiful species grows in immense profusion at Fo-edge, six miles N. W. of Bury; it also occurs on the hills near Rochdale, but I do not know the exact locality, *J. B. Wood*.

Polypodium vulgare. On old walls in many places, *S. Gibson, W. Wilson, S. Thompson*: common near Coniston, *M. Beever*: very common near Lancaster, *S. Simpson*: common on rough ditch-banks, and at the roots of trees in woods; the va-

riety *acutum* of Francis occurs at Sale, six miles from Manchester, *J. B. Wood* : generally distributed near Manchester, but not common ; the var. *acutum* found growing with its common state, *J. Sidebotham*.

Polypodium Phegopteris. Dulesgate, near Todmorden, *S. Gibson* : near Lancaster, beyond the Asylum ; Dean-church clough, near Belton (John Martin), *W. Wilson* : Fox-clough, near Colne ; Padiham-brook, near Whalley ; Old Man mountain, *G. Pinder* : Mere-clough, Cotteril-clough, *J. Sidebotham* : near Lancaster, *S. Simpson* : common near Coniston, *M. Beever* ; this is not an uncommon species in the neighbourhood of Manchester, being found in several of our woods, as Mere-clough, Philip's wood, near Prestwick, Boghart-hole clough, generally very fine and luxuriant, *J. B. Wood*.

Polypodium Dryopteris. Broad-bank, near Colne ; Mr. Francis observes that the sori remain perfectly distinct, but I have found them confluent, *S. Gibson* : Dean-church clough (John Martin), *W. Wilson* : Marsden near Colne, and Padiham-brook, *G. Pinder* : Mere-clough and Cotteril-clough, *J. Sidebotham* : near Lancaster, *S. Simpson* : common near Coniston, *M. Beever* : more rare than *P. Phegopteris*, although found in three or four localities, as Mere-clough, Ashworth-wood &c., *J. B. Wood*.—Var. *rigidum*, *mihi* : Broad-bank, near Colne : this variety is sometimes taken for *P. calcareum*, *S. Gibson*.

Polypodium calcareum. Broad-bank and Sheden-clough. Mr. Francis has incorrectly given my name as an authority for this species being found near Lancaster ; and in Mr. Watson's 'Notes on the Geographical Distribution of British Ferns,' this species is said to affect lime rocks, but the Lancashire localities are on the gravel which overlies the coal-formation, and it therefore cannot be said to be a limestone plant, *S. Gibson* : near Lancaster (— Gibson to R. B. Bowman),* Sheden-clough, three miles from Burnley (R. Leyland to Jas. Macnab), *H. C. Watson*.

Cystopteris fragilis. Broad-bank, *S. Gibson* : Wycottar-hall, walls near Colne and Clitheroc, *G. Pinder* : rare near Coniston, occasionally met with on the Old Man mountain, and the adjoining fells, more plentifully about the slate-quarries in Tibberthwaite, where it has the character of *C. angustata*, *M. Beever* : near Lancaster, *S. Simpson*.

Cystopteris dentata. Broad-bank, *S. Gibson* : Lymm-eye lock, between Warrington and Manchester, *W. Wilson*.

Cystopteris angustata. Cliviger, *S. Gibson*.

Cystopteris alpina. Ditto. *C. regia*. Broad-bank. All these forms of *Cystopteris* are common in the neighbourhood of Burnley, together with others perhaps quite as distinct : how far they may be considered species, I leave to the better judgment of others ; *S. Gibson*.

Polystichum aculeatum. Sheden-clough, near Todmorden, *S. Gibson* : Fearnhead, near Warrington ; Newton, *W. Wilson*.

Polystichum angulare. Marple-wood, *J. Sidebotham* ; rare near Coniston, *M. Beever*.

Polystichum lobatum. Burton-wood &c. near Warrington, *W. Wilson*. Houghend-clough, not common, *J. Sidebotham* : margin of Black-beck and above Brantwood ;

* The discrepancy complained of by Mr. Gibson again occurs ; I imagine the Mr. Gibson referred to by Mr. Francis, and again by Mr. Watson, is not Mr. S. Gibson of Hebden Bridge.

M. Beever ; a plant of rare occurrence, met with however at Cotteril-clough, Bamford-wood, and one or two other places, *J. B. Wood*.

Lastræa Oreopteris. Walsden, and near Todmorden, *S. Gibson* : near Warrington, Woolston, &c., *W. Wilson* : abundant, *G. Pinder* : generally distributed near Manchester, *J. Sidebotham* : Penketh, and many places about Liverpool, by the men employed in the Botanic Garden, *S. Thompson* : near Lancaster, *S. Simpson* : very abundant near mountains and streams in the neighbourhood of Coniston, *M. Beever*.

Lastræa Filix-mas. Common, *S. Gibson*, *W. Wilson*, *J. Sidebotham*, *J. B. Wood* ; the variety figured in Newman's 'British Ferns,' p. 52, occurs at Rotten-clough near Todmorden, *S. Gibson* : near Liverpool, *S. Thompson* : near Lancaster, very common, *S. Simpson* : common near Coniston, also the serrated variety, *M. Beever*.

Lastræa rigida. Top lock of Lancaster and Kendal canal (Rev. Thos. Smythes), *W. Wilson* : sparingly on the confines of the county, adjoining Westmoreland, *S. Simpson*.

Lastræa dilatata. Common in many parts of the county, *S. Gibson* : frequent, *W. Wilson* : very common, *J. Sidebotham* : near Liverpool, *S. Thompson* : near Lancaster, *S. Simpson* : near Coniston, *M. Beever* : extremely abundant, *J. B. Wood*.

Lastræa spinulosa. Abundant on the borders of Risley-moss, near Warrington, growing in company with *L. dilatata*, from which it is so strikingly different in habit as to compel the opinion that it must be distinct, *W. Wilson* : Langdale in the lake district, *G. Pinder* : Lever's Hulme, the only locality I know of near Manchester, *J. Sidebotham* : near Lancaster, *S. Simpson* : this beautiful and interesting fern, which I must certainly still consider as specifically distinct from *L. dilatata*, is found in only one locality in this neighbourhood (Broughton, Manchester), in an old alder-swamp at Lever's Hulme ; it is intermixed with its more common ally, and when thus seen growing together the difference in their habit is remarkably striking : it approaches most to *L. cristata*, *J. B. Wood*.

Lastræa dunnetorum. Cliviger, four miles from Burnley, *S. Gibson*.

Athyrium Filix-femina. Common in many places, *S. Gibson* : frequent ; a variety grows on Risley-moss, with more rigid habit, *W. Wilson* : common, *G. Pinder* : very common near Manchester, *J. Sidebotham* : near Coniston, *M. Beever*.

Athyrium iriquum. Sheden-clough, *S. Gibson* : near Coniston, *M. Beever*.

Asplenium Adiantum-nigrum. Broad-bank and Sheden-clough, *S. Gibson* : Winwick, near Warrington, *W. Wilson* : I am acquainted with but one locality, the canal wall near Marple, *J. Sidebotham* : very common near Lancaster, *S. Simpson* : very local near Coniston, and in small quantities, *M. Beever*.

Asplenium Ruta-muraria. Broad-bank, *S. Gibson*, *W. Wilson* : Colne and Clitheroe, *G. Pinder* : Hough-end Hall, common near Mottram, *J. Sidebotham* : West Derby, *S. Thompson* : very common near Lancaster, *S. Simpson* : on the Shepherd's Bridge in Yew-dale, the only locality I am acquainted with, *M. Beever* : very local, occurring on stone walls in two or three places, *J. B. Wood*.

Asplenium marinum. In 1828 I found this species sparingly on a stone by the side of the river, about two miles from Liverpool on the way to Runcorn, *S. Gibson* : a variety still grows in Winwick Stone Delf, where it never attains any considerable size ; when fully developed by cultivation in a greenhouse, the pinnules are much shorter and rounder than those of maritime plants under the same treatment. I have not seen this species at Knot's Hole near Liverpool, but it is plentiful there according to Mr. T. B. Hall, see 'Flora of Liverpool ;' *W. Wilson* : it is still in existence in

Winwick stone-quarry, near Warrington: my friend Mr. Wilson brought me two small roots from that locality a short time since, for cultivation; it is never more than two or three inches high, and the pinnules are singularly cuneate and strongly crenate on their edges, very much resembling the Killarney plant (figured Newman's 'British Ferns,' 76); it produces seed in abundance; *J. B. Wood*: I am indebted both to Mr. Wilson and Dr. Wood for specimens from Winwick, and can bear witness to the accuracy of Dr. Wood's remark on their similarity to the Killarney specimens, *H. Newman*: the Dingle near Liverpool (T. B. Hall), *H. C. Watson*; Knot's Hole, the Dingle, *S. Thompson*; Heysham and Silverdale, *S. Simpson*.

Asplenium Trichomanes. Kant-clough, near Burnley, *S. Gibson*: near Burton, north of Lancaster, *W. Wilson*: Marsden, Clitheroe, and Stoneyhurst college-walls, *G. Pinder*: Greenfield, *J. Sidebotham*: near Lancaster, common, *S. Simpson*: common near Coniston, *M. Beever*; this is very sparingly distributed in the neighbourhood of Manchester, and is always very dwarf and poor, *J. B. Wood*. Var. β . *incisum*. — Kant-clough, near Burnley, *S. Gibson*.

Asplenium viride. Dulesgate; it is said to grow in the quarries at Staley, but I have not seen it, *J. Sidebotham*. Var. β . *ramosum*; Dulesgate, Var. γ . *laciniatum*, mili, frond deeply laciniated. Dulesgate, *S. Gibson*.

Scelopendrium vulgare. Sheden-clough, Kant-clough and other places, *S. Gibson*: Burton-wood, Fearn-head &c., near Warrington, *W. Wilson*: common, *G. Pinder*: not uncommon, Arden-hall moat, coal-pits about Arden Marple, and the variety *crispum* is found in Cotteril-clough, *J. Sidebotham*: Penketh, *S. Thompson*: only once found near Coniston in 1841, on the wall of a water-course near Tent-lodge, *M. Beever*; Bamford-wood near Manchester, *J. B. Wood*.

Ceterach officinarum. Near Kellet, north of Lancaster; I have credible information also that it grows near West Houghton, *W. Wilson*: a single plant in the Liverpool botanic garden, from Club-moor, three miles from Liverpool, *S. Thompson*: near Lancaster, *S. Simpson*.

Hymenophyllum Wilsoni. Thevilly near Burnley, *S. Gibson*: Old Man mountain, *G. Pinder*, *M. Beever*: sparingly in caves at Greenfield, *J. Sidebotham*: near Lancaster, very common, *S. Simpson*; Rake-hey Common, near Todmorden (R. Leyland), *H. C. Watson*; on hills near Bury, *J. B. Wood*.

Hymenophyllum Tunbridgensis. Cliviger, *S. Gibson*: sparingly in caves at Greenfield, *J. Sidebotham*: Coniston, *S. Simpson*.

Osmunda regalis. Chilburn, near Todmorden, *S. Gibson*: Risly-moss and in a lane near Orford, one mile from Warrington, *W. Wilson*: Little Langdale, in the lake district, *G. Pinder*: sparingly at Bowden-moss, *J. Sidebotham*: near Lancaster, *S. Simpson*; near Coniston, in boggy situations, *M. Beever*; Heysham (J. Tatnam to Bot. Soc. Lond.), *H. C. Watson*; not unfrequent in bogs, Clat-moss; in the neighbourhood of Southport I observed this "royal fern" to be very abundant, and attaining a most immense size, many plants exceeding ten feet in height, *J. B. Wood*.

Botrychium Lunaria. Chilburn, *S. Gibson*: near Newton, Southport (Dr. Wood), *W. Wilson*: common in the upland pastures about Oldham, very fine and luxuriant at Reddish, *J. Sidebotham*: near Lancaster, *S. Simpson*; on the common between Bootle and Crosby, ? called Seaforth Common, *H. C. Watson*; a common plant on our neighbouring hills, *J. B. Wood*.

Ophioglossum vulgatum. *S. Gibson*: Woolstone and Gate-wharf, near Warrington, *W. Wilson*: rather common in Reddish-vale, meadows near the river Tame &c.,

Worsley (T G Rylands), *S. Thompson* ; near Lancaster, *S. Simpson* ; in a field near Coniston old hall, *M. Beever* ; near Crosby, *H. C. Watson* ; common near Manchester, *J. B. Wood*.

Lycopodium clavatum. Near Coniston, *M. Beever* ; Todmorden valley ; hills very generally, *G. Pinder* ; Greenfield, Fo-edge, *J. Sidebotham* ; rare near Manchester ; more common on the elevated moors, *J. B. Wood*.

Lycopodium alpinum. Near Coniston, *M. Beever* ; near the Holme, about five miles from Burnley, (Mr. Woodward) ; moors above the scouts near Burnley, (Rev. W. Wood) ; Coniston fells, (Mr. Davey) ; *Turner and Dillwyn*, 372 : Greenfield, *J. Sidebotham* ; Fo-edge near Bury, *J. B. Wood* ; Cliviger, at a very low elevation, barren, *W. Wilson*.

Lycopodium selaginoides. Near Coniston, *M. Beever* ; on the common between Bootle and Crosby, *H. C. Watson* ; shore at Southport, *W. Wilson*.

Lycopodium Selago. Near Coniston, *M. Beever* ; White-moor near Colne, *G. Pinder* ; Fo-edge near Bury, *J. Sidebotham* ; Fo-edge and Mottram, *J. B. Wood* ; Cliviger, *W. Wilson*.

Isoetes lacustris. Near Coniston, *M. Beever*.

Equisetum hyemale. Very rare ; I believe it is to be found in small quantities in Merc-clough near Manchester ; I have not seen it, but can rely on the authority of the individual who did gather it, *J. B. Wood*.

Equisetum variegatum. Bootle and Southport, *W. Wilson*, *S. Gibson*.

Equisetum arvense. Near Coniston, introduced ? *M. Beever* ; common near Manchester, *J. Sidebotham* ; Prestwick, *H. C. Watson* ; far too common, *J. B. Wood*.

Equisetum sylvaticum. The copper-mine near Coniston, *M. Beever* ; common near Manchester, *J. Sidebotham* ; Scorton (S. Simpson to Bot. Soc. Lond.), *H. C. Watson* ; most abundant in woods, thickets and open pastures, *J. B. Wood*.

Equisetum palustre. Near Coniston, *M. Beever* ; common near Manchester, *J. Sidebotham*, *J. B. Wood* ; sands near Little Crosby, near Manchester, *H. C. Watson*.

Equisetum limosum. Near Manchester, *J. Sidebotham*, *H. C. Watson* ; many of the "pits" near Manchester are completely choked up with it, *J. B. Wood*.

Equisetum fluviatile. Common near Manchester, *J. Sidebotham* ; very abundant in swampy woods, *J. B. Wood*.

CHESHIRE.

Lomaria spicant. *W. Wilson*, *H. C. Watson*.

Pteris Aquilina. *W. Wilson*, *H. C. Watson* ; Bidston-hill &c., abundant, *S. Thompson*.

Polypodium vulgare. A serrated variety near Frodsham, *W. Wilson*, *H. C. Watson* ; between Woodside and Bidston, abundant, *S. Thompson*.

Polypodium Phegopteris. Werneth, *J. Sidebotham* ; Mow-cop, *G. Pinder*.

Polypodium Dryopteris. Two miles south of Warrington, attaining a very large size, *W. Wilson*.

Cystopteris fragilis. Extremely rare, I know of but one locality, Rostherne Church, *J. B. Wood*, *J. Sidebotham*.

Cystopteris dentata. Rostherne Church, *W. Wilson*.

Polystichum aculeatum. Very local, Marple woods, *J. B. Wood*.

Polystichum angulare. Two miles south of Warrington, in a dingle, growing in

company with *Polypodium Dryopteris*, *W. Wilson*; plentiful in Marple wood, *J. B. Wood*.

Lastræa Thelypteris. Newchurch-bog, near Over, where it bears fruit plentifully, *Pelty*-pool, also near Over; Knutsford-moor and Rostherne-mere, *W. Wilson*, *J. B. Wood*; Rostherne-mere, where it bears fruit only in very fine seasons, as 1842, *J. Sidebotham*; Wybunbury-bog, *G. Pinder*.

Lastræa Oreopteris. *W. Wilson*.

Lastræa Filix-mas. *W. Wilson*, *H. C. Watson*, *S. Thompson*.

Lastræa cristata. Wybunbury-bog; I should be sorry should this notice lead to its extermination, *G. Pinder*; I am indebted to Mr. Pinder for specimens, they are identical with those from Norfolk, *E. Newman*.

Lastræa dilatata. *W. Wilson*; Easterne-wood, abundant, *S. Thompson*.

Lastræa spinulosa. Newchurch-bog, *Pelty*-pool and Knutsford-moor, *W. Wilson*, Wybunbury-bog, *G. Pinder*.

Athyrium Filix-femina. *H. C. Watson*; attains a very great size in the Dingle, two miles south of Warrington, *W. Wilson*; lanes about Bidston, *S. Thompson*.

Asplenium Adiantum-nigrum. *H. C. Watson*, *W. Wilson*: Between Woodside and Oxtan, very fine, *S. Thompson*.

Asplenium Ruta-muraria. *W. Wilson*; Red and Yellow Noses, *S. Thompson*.

Asplenium marinum. On the rocks called the Red Noses, at New Brighton, *W. Wilson*, *H. C. Watson*; on the rocks of Hilbre island at the mouth of the river Dee, on the coast of Cheshire, this species is met with in great quantities, *J. B. Wood*.

Asplenium Trichomanes. Unfrequent; I have seen it only in the Well at Beeston, *W. Wilson*.

Scelopendrium vulgare. *W. Wilson*, *H. C. Watson*; near the toll-gate between Woodside and Bidston, *S. Thompson*; Cotterill-wood and Arden-hall, *J. B. Wood*.

Osmunda regalis. Wybunbury-bog, Smethwick, near Congleton, *G. Pinder*; sparingly at Baguley-moor, *J. Sidebotham*; Carrington-moss, *J. B. Wood*.

Botrychium Lunaria. Near Over it attains a great size, and is often branched, *W. Wilson*; Alderley-edge (Rev. Isaac Bell), *H. C. Watson*: sand-hills between Egremont and New Brighton, found abundantly in 1841 by H. E. Robson, *S. Thompson*; when botanizing near Over with my valued friend Mr. Wilson, in June, 1842, I met with some singular deviations in this interesting plant; one specimen had no less than four fertile branches and two barren ones, springing from a common stem; on several of the pinnules of the barren frond were a number of thecæ, some on their plain surface, others on their edges; many specimens had two fertile fronds generally of unequal size; they were growing in a meadow on a small declivity, in company with *Habenaria chlorantha*, *J. B. Wood*.

Ophioglossum vulgatum. *W. Wilson*; Davenport and Summerfield, *G. Pinder*; Alderly and Tranmere, *H. C. Watson*.

Lycopodium clavatum. Delamere forest, *W. Wilson*.

Lycopodium inundatum. Oak-mere and Baguley-moor, *W. Wilson*.

Lycopodium Selago. Risly-moss near Warrington, *W. Wilson*.

Pilularia globulifera. Bartington-heath &c. *W. Wilson*.

Equisetum hyemale. Lally's wood near Over, *W. Wilson*.

Equisetum variegatum. Sands at New Brighton, *H. C. Watson*.

Equisetum palustre. *H. C. Watson*; very abundant; the variety *polystachion* was gathered in some plenty by the sides of the embankment of the Sheffield railway near

Godley, during the last summer; in all the specimens I have seen the terminal catkin of the main stem was present, thus clearly proving that the proliferous condition is not dependent on the accidental circumstance of the top of the plant having been cropped or destroyed, an opinion very generally prevailing among botanists, *J. B. Wood*.

Equisetum limosum. *H. C. Watson.*

Equisetum arvense. *H. C. Watson.*

Equisetum sylvaticum. *H. C. Watson*; rather frequent, *W. Wilson.*

Equisetum fluviatile. *H. C. Watson.*

It is intended to give the lists for Staffordshire, Warwickshire and Worcestershire, in the *March Phytologist*: further information respecting these counties is particularly solicited.

EDWARD NEWMAN.

(To be continued).

ART. CXVIII. — *Some Account of the Botanical Collections recently made by Dr. Theodore Kotschy (for the Wurtemberg Botanical Union) in Nubia and Cordofan.* Communicated by MR. WM. PAMPLIN, jun.

(Continued from p. 459).

<i>Umbelliferæ.</i>	Dolichos No. 218.	C.— <i>Hedysarææ.</i>
<i>Coriandrum sativum, L.</i>	<i>obliquifolius, Schnizl.</i>	<i>Æschynomene macropoda,</i>
<i>Terebinthaceæ.</i>	No. 288.	[<i>Guill. Perr.</i>
<i>Balsamodendron Kafal, Fors</i>	<i>hastæfolius, Schnizl.</i>	<i>Onobrychis arabica, Hochs.</i>
<i>Papilionaceæ.</i>	<i>Cajanus flavus, Cand.</i>	<i>Alysicarpus vaginalis, H.</i>
A.— <i>Loteæ.</i>	<i>monstrosus</i>	<i>rugosus, Hochst.</i>
<i>Lotus nubicus, Hchst.</i>	<i>Clitoria Ternatea, L.</i>	<i>Cassieæ.</i>
<i>arabicus, L. [Perr.</i>	<i>Indigofera diphylla, Vert.</i>	A.— <i>Genisteæ.</i>
<i>Cyanopsis senegalensis, Gui.</i>	<i>deflexa, Hochst.</i>	<i>Requienia obovata, Cand.</i>
<i>Trigonella hamosa, L.</i>	<i>coidifolia, Roth.</i>	<i>Crotalaria macilenta, Sm.</i>
<i>Tephrosia leptostachys, Can.</i>	<i>senegalensis, Lam.</i>	<i>lupinoides, Hochst.</i>
<i>uniflora, Pers.</i>	<i>var. latifolia</i>	<i>podocarpa, Cand.</i>
<i>anthylloides, Hochst.</i>	<i>paucifolia, Del.</i>	<i>microcarpa, Hochst.</i>
<i>cordofana, H.</i>	<i>viscosa, Lam.</i>	<i>atrorubens, Hchst.</i>
<i>Kotschyana, Hochst.</i>	<i>oligosperma, Cand.</i>	<i>sphærocarpa, Per. var</i>
<i>linearis, Perr.</i>	<i>astragalina, Cand.</i>	<i>angustifolia</i>
<i>Sesbania filiformis, Gll. Perr</i>	<i>var. melanosperma, C.</i>	<i>thebaica, Cand.</i>
<i>pachycarpa, Gll. Perr.</i>	<i>argentea, L.</i>	B.— <i>Genuinæ.</i>
<i>punctata, Pers.</i>	<i>var. polyphylla</i>	<i>Bauhinia parvifolia, Hoch.</i>
<i>tetraptera, Hochst.</i>	<i>strobilifera, Hochst.</i>	<i>tamarindacea, Del.</i>
B.— <i>Fabaceæ.</i>	<i>Anil, L.</i>	<i>Cassia acutifolia, Del.</i>
<i>Kennedya arabica, H. St.</i>	<i>var. orthocarpa, Cand.</i>	<i>Tora, L.</i>
<i>Rhynchosia Memnonia, Ca.</i>	<i>semitrijuga, Forsk.</i>	<i>obovata, Collad.</i>
<i>Dolichos angustifolius, Vhl.</i>	<i>aspera, Pers.</i>	<i>Absus, L.</i>

- Cassia rhachyptera*, *Hochst.* *Gicseckia pharnacioides* *L.*
Chamæfistula Sophora, *G.* *Rosaceæ.*
Mimoseæ. [*Don.* *Potentilla supina*, *L.*
Neptunia stolonifera, *G. P.* *Onagraceæ.*
Mimosa Habbas, *Del.* *A.—Jussieuæ.*
Acacia No. 294 = *Jussieuæ nubica*, *Hochst.*
A. sericocephala, *Fenzl.* *Isnardia lythrarioides*, *H.*
No. 295, = *C.—Myrobalanææ.*
Inga floribunda, *Fenzl.* *Poivreæ aculeata*, *Cnd.* var.
papyracea, *Hochst.* *subinermis*
Corniculatæ. *Guiera senegalensis*, *Lam.*
B.—Saxifrageæ. *Terminalia Brownei*, *Fres.*
Vahlia Weldenii, *Rchb.* *Lythrarieæ.*
cordofana, *Hochst.* *B.—Lythreæ.*
Portulacaceæ. *Bergia suffruticosa*, *Fenzl.*
A.—Paronychieæ. *verticillata*, *W.*
Polycarpæa glabrifolia, *Cnd.* *peploidis*, *Guill. Per.*
rutila, *Fenzl.* *erecta*, *Guill. Perr.*
linearifolia, *Cand.* *Ammannia ægyptiaca*, *W.*
Mollugo bellidifolia, *Ser.* *attenuata*, *Hochst.*
Cerviana, *Ser.* *Lawsonia alba*, *Lam.*
Arphorsia memphitica, *Fenzl.* *Tetradynamææ.*
B.—Polygoneæ. *Senebiera nilotica*, *Cand.*
Ceratogonum atriplicifolium *Farsetia ramosissima*, *Hch.*
C.—Portulacææ. *stenoptera*, *Hochst.*
Trianthema sedifolium, *Vis.* *Nasturtium palustre*, *Cand.*
polyspermum, *Hochst.* *Morettia philæana*, *Cand.*
pentandrum, *L.* *Pteroloma arabicum*, *St.Hc.*
salsoloides, *F.* *Capparideæ.*
chrySTALLinum, *Vahl.* *Cleome chrysantha*, *Dec.*
Portulaca oleracea, *L.* *Polanisia orthocarpa*, *Hch.*
Aizoideæ. *Roscia octandra*, *Hchst.*
A.—Atripliceæ. *Cadaba glandulosa*, *Forsk.*
Chenopodium murale, *L.* *farinosa*, *F.*
Limeum viscosum, *Fenzl.* *Capparideæ*, *sine flor. et fr.*
Amaranthus polygamus, *L.* *Violaceæ.*
= *angustifol.* *M.B.* *Ionidium rhabdospermum*, *H*
Celosia argentea, *L.* *Rutaceæ.*
trigyna, *L. (nec. var.)* *A.—Euphorbiaceæ.*
Aërva tomentosa, *Forsk.* *Euphorbia thymifolia*, *Frsk.*
brachiata, *Mart.* *granulata*, *Vahl.*
Digera arvensis, *Forsk.* *hypericifolia*, *L. var.*
Desmochæta flavescens, *Cnd.* *angustif. et pubesc.*
Achyranthes argentea, *Lam.* *acalyphoides*, *Hochst.*
Alternanthera nodiflora, *Br.* *convolvuloides*, *H.*
Pongatium indicum, *Lam.* *polynemoides*, *H.*
B.—Genuinææ. *Chamæsyce*, *L.*
Gieseckia rubella, *Hchst.* *Dalechampia cordofana*, *H.*

- Mercurialis alternifolia*, *Il.*
Acalypha abortiva, *Hochst.*
fimbriata, *Hochst.*
Crozophora senegalensis, *S.*
Cephalocroton cordofanum
Croton lobatus, *L.* [*H.*
serratus, *Hochst.*
obliquifolius, *Vis.*
Ricinus africanus, *Mill.*
Phyllanthus, No. 89, =
Ph. Niruri, *L.*
Urinaria, *L.*
venosus, *Hochst.*
linoides, *H.*
B.—Rutariææ.
Ruta tuberculata, *Forsk.*
var. *obovata*
Moringa aptera, *Gärt.*
Sapindaceæ.
A.—Tribuleæ.
Tribulus terrestris, *L.*
Fagonia arabica, *L.*
Zypophyllum simplex, *L.*
C.—Paullinieæ.
Cardiospermum Halicaca-
Malvaceæ. [bum
B.—Malvææ.
Sida alnifolia, *L.*
grewioides, *Gll. Perr.*
Kotschy, *Hchst.*
althæifolia, *Sw.*
heterosperma, *Hchst.*
Abutilon graveolens, *W.A.*
ramosum, *Gll. Per.*
asiaticum, *Guill. Per.*
Pavonia Kotschy, *Hchst.*
dictyocarpa, *Hochst.*
triloba, *Hochst.*
No. 395, =
P. heterophylla, *Hch*
triloba, *Guill. var.?*
triloba, *Hochst.*
No. 220
hermanioides, *Fenzl.*
heteroph. var.?
Dumreichera arabica, *H.St.*
var. *major.*
C.—Hibisceææ.

Lagunæa ternata, Cav.	C.—Byttneriæ.	Antichorus depressus, L.
Hibiscus cordatus, Hochst.	Herrmannia arabica, Hchst.	Corchorus olitorius, L.
Trionum, L.	Waltheria indica, L.	brachycarpus, Gll.P.
amblycarpus, Hchst.	Melhania Kotschy, Hchst.	tridens, L.
Bammia, Link	Theacæ.	alatus, Hochst.
Geraniacæ.	B.—Celastreæ.	Grewia No. 281, =
A.—Geraniæ.	Celastrus senegalensis, Lam	G. commutata, Cand
Monsonia senegalensis, G.P.	Tiliacæ.	echinulata, Caill.
		W. PAMPLIN, JUN.
	(To be continued).	

ART. CXIX.—*Analytical Notice of the ‘Transactions of the Linnean Society of London,’ vol. xix. pt. 1. 1842.*

III. — *Some Account of Aucklandia, a new Genus of Compositæ, believed to produce the Costus of Dioscorides. By HUGH FALCONAR, M.D., Superintendent of the Hon. East India Company's Botanic Garden at Saharunpore. Communicated by J. F. ROYLE, M.D., F.R.S. & L.S.*

Read November 17, 1840.

THE subject of this paper is nearly allied to our own *Saussurea* and *Carlina*, from the former of which genera it seems to differ chiefly in “the rays of its feathery pappus being disposed in two rows, and cohering by twos or threes at the base.” It grows in great abundance on the damp open slopes of the mountains surrounding the valley of Cashmeer, at an elevation of from 8000 to 9000 feet above the sea-level, flowering in June and maturing its fruit in October. The plant has but a slender medical reputation among the native Cashmeerians, since it is chiefly employed by them to protect bales of shawls from the attacks of moths, its odour being very pungent, and well calculated to effect this; portions of the stem are also suspended from the necks of children, in order to protect them from the *evil eye*, and to expel worms.

The author observes that he has “frequently been asked, when in Cashmeer, where and for what purpose the immense quantities of the root, annually collected, could find a market.” We give a brief summary of the commercial history of the plant, extracted from the details given in the paper. The roots are dug up in September and October; they are chopped into pieces from two to six inches long, and in this state are exported in vast quantities to the Punjab, whence the larger portion goes down to Bombay, where it is shipped for the Red Sea, the Persian Gulf and China; a portion finds its way into Hindoostan

Proper, whence it is taken to Calcutta, and is there bought up for the China market under the name of *Putchuk*.

One object of the author in this paper is to show that the root of *Aucklandia* is identical with the *Costus* of Dioscorides; and into the discussion of this question he enters pretty fully. The following are the proofs adduced in support of this opinion. 1. The correspondence of the root of *Aucklandia* with the descriptions of ancient authors. 2. The coincidence of names, this root being called *Koot* in Cashmeer, the Arabic *Koost* being given as synonymous. 3. At the present day the Chinese burn the root as an incense in their temples, and make use of it medicinally; the *Costus* was employed in the same way by the ancients. 4. The testimony of Persian authors that the *Koost* is not produced in Arabia, but is from the "borders of India." 5. The commercial history of the Cashmeerian root.

The author in conclusion makes some remarks on the probability that the *Aucklandia*, if cultivated, "would form a valuable addition to the wealth of the Hill people." He states that in consequence of the lively demand for the root in Cashmeer, there is seldom any surplus stock in hand; and the plant being a perennial, and requiring several years to mature its root, it is not likely the valley would yield any considerable increase on the quantity now collected, without ultimately reducing that quantity.

The plant is named by the author *Aucklandia Costus*, the generic name being given in honour of George Earl Auckland; it was met with during a journey to Cashmeer, undertaken under his Lordship's auspices while Governor-general of India. Full characters and a detailed description are given.

IV.—*Description of a new Genus of Lineæ.* By CHARLES C. BABINGTON, Esq., M.A., F.L.S., F.G.S.

Read January 19, 1841.

THE seeds of this interesting addition to the small order to which it belongs, were collected in the interior of New South Wales by Mr. Melluish, who sent them to the Cambridge Botanic Garden, where at the time the paper was written the plants raised from the seeds had flowered during three successive years.

The name given by the author is *Cliococca tenuifolia*; the generic name refers to the indehiscent nature of the single-seeded carpels, in which respect, and in an apparent tendency to the imperfect gynobasic structure of the *Malvaceæ*, the relationship between that family and the *Lineæ* is more fully evinced. The petals are imbricated in

æstivation, and are not unguiculate; the coats of the carpels are also very thick, and the carpels themselves are perfectly closed, not even opening when they separate for the dissemination of the seed: in all which particulars the plant differs from the usual structure of *Lineæ*.

The paper contains full generic and specific characters, and is illustrated by a plate of details drawn by Mr. J. D. Sowerby.

V.—*On an edible Fungus from Tierra del Fuego, and an allied Chilean Species.* By the Rev. M. J. BERKELEY, M.A., F.L.S.

Read March 16, 1841.

MR. DARWIN gives an account in his *Researches* of a production common on a species of beech in *Tierra del Fuego*, which is used by the natives as an article of food. The author's belief that these bodies were referrible to the *Fungi*, was confirmed by an inspection of the specimens preserved by Mr. Darwin, and by the perusal of that gentleman's original notes. With the aid of these materials he has been able to establish a new genus (which he has named *Cyttaria*), containing two well-defined species.

The following extracts from Mr. Darwin's rough memoranda relate to the first species — *C. Darwinii*.

"In the beech forests the trees are much diseased; on the rough excrescences grow vast numbers of yellow balls. They are of the colour of the yolk of an egg, and vary in size from that of a bullet to that of a small apple; in shape they are globular, but a little produced towards the point of attachment. They grow both on the branches and stems in groups. When young they contain much fluid and are tasteless, but in their older and altered state they form a very essential article of food for the Fuegian. The boys collect them, and they are eaten uncooked with the fish. When we were in Good Success Bay in December, they were then young; in this state they are externally quite smooth, turgid, and of a bright colour, with no internal cavity. The external surface was marked with white spaces, as of a membrane covering a cell. Upon keeping one in a drawer, my attention was called, after some interval, by finding it become nearly dry, the whole surface honeycombed by regular cells, with the decided smell of a *Fungus*, and with a slightly sweet mucous taste. In this state I have found them during January and February (1833) over the whole country. Upon dividing one, the centre is found partly hollow and filled with brown fibrous matter; this evidently merely acts as a support to the elastic semitransparent ligamentous substance which forms the base and sides of the external cells. Some of these balls remain on the trees nearly the whole year; Captain Fitzroy has seen them in June."—p.38.

Mr. Darwin found the same species at Port Famine in February, 1834; and again, under the date of June of the same year, he describes the appearance in an older state. He found them to be much infested with larvæ.

The second species — *C. Berteröi* — is a native of Chile, and is found upon *Fagus obliqua*. It appears to have been first described by Bertero, in a posthumous list of Fungi published in a journal called 'Mercurio Chileno,' a translation of which by Ruschenberger was given in Silliman's Journal, xxiii. 78. The following is Bertero's account.

"*Fagus obliqua*, Mirb., *Roble*, oak, a tree common in the high mountains. In the spring is formed on the branches of this tree a great number of whitish tubercles, the parenchyma of which is spongy, though sufficiently consistent at first. I thought it a galla or excrescence, produced by the wound of some insect, as is seen on some other trees in Europe, and I gave the matter but little attention; but two days afterwards they became unglued from the branch, and I observed with surprise that the skin was broken, and the whole surface covered with pentagonal tubes precisely similar to the alveoli of a honeycomb, at first full of a gelatinous substance of the colour of milk, which disappeared with the maturation; afterwards throwing out from these cavities with some force an impalpable powder, when it was touched, exactly as is observed in the *Peziza vesiculosa*. At the end of two days these bodies softened, lost their explosive property, and rotted. It perhaps forms a new genus, approximating to the *Sphæriæ*. Its vulgar name is *Dignènes*. Some persons eat them, but their insipid and styptic taste is disagreeable."—p. 39.

The following extract from Mr. Darwin's notes also refers to this species.

"Sept. 1834. On the hills near Nancagua and San Fernando, there are large woods of *Roble*, or the Chilian oak. I found on it a yellow fungus, very closely resembling the edible ones of the beech of Tierra del Fuego. Speaking from memory, the difference consists in these being paler coloured, but the inside of the cups of a darker orange. The greatest difference is, however, in the more irregular shape, in place of being spherical: they are also much larger. Many are three times as large as the largest of my Fuegian specimens. The footstalk appears longer; this is necessary from the roughness of the bark of the trees on which they grow. In the young state there is an internal cavity. They are occasionally eaten by the poor people. I observe that these are not infested with larvæ, like those of Tierra del Fuego."—Id.

Mr. Berkeley gives generic and specific characters, as well as a full description in English; and the illustrative plate is filled with anatomical details from his own drawings.

VII. — *On a reformed Character of the Genus Cryptolepis*, Brown. By HUGH FALCONER, M.D., *Superintendent of the Hon. East India Company's Botanic Garden at Saharunpore*. Communicated by J. F. ROYLE, M.D., F.R.S., F.L.S., &c.

Read June 15th, 1841.

THE genus *Cryptolepis* was established by Mr. Brown, who, in his Monograph published in the 'Memoirs of the Wernerian Society,' re-

fers the genus to the Apocynææ, placing it next to Apocynum : in this he has been followed all subsequent authors. But Dr. Falconer finds, on examination of specimens of *Cryptolepis Buchanani*, that it "has the whole of the accessory stigmatic apparatus of *Asclepiadeæ*, with granular pollen as typically developed as in *Cryptostegia* or any other of the *Periplocæ*, although in a less considerable degree of evolution; and that it must rank in that order along with them."

The author considers that the appendiculæ of the stigma, from their extreme minuteness must have eluded Mr. Brown's notice; two other points of difference lead the author to conclude that the plant examined by himself must have been different from Mr. Brown's. In the first place he does not find the five hypogynous scales mentioned in the generic definition; the same scales are wanting, so far as he has ascertained, in all the *Periploceous* genera allied to *Cryptolepis*, including even *Decalepis* of Wight and Arnott. Secondly, the species examined by the author has axillary instead of interpetiolar corymbs, an important character in the habit.

Many particulars relating to the reproductive organs are given, together with an amended generic character. The drawings for the illustrative plate were made by Kureem Buksh, a native artist.

IX. — *On the existence of Spiral Cells in the Seeds of Acanthaceæ.* By Mr. RICHARD KIPPIST, *Libr.L.S.* Communicated by the Secretary.

Read March 17th, 1840.

BOTANISTS have long been aware of the existence of spiral vessels in the envelopes of the seeds of several families of plants. Mr. Brown detected them first in the pericarps of *Casuarinæ*, afterwards in the testa of some *Orchideæ*. They were observed by Lessing in *Compositæ*, by Horkel and Schleiden in *Labiataæ*, *Polemoniaceæ* and *Hydrocharideæ*; and in the 'Botanical Register' is given an account of their appearance in the seeds of *Collomia*. We believe that the merit of detecting these cells in the seeds of *Acanthaceæ* is due to Mr. Kippist, who has in this paper given an interesting detail of his researches. The following is the author's account of his discovery.

"My attention was first directed to this subject by witnessing the very beautiful appearance under the microscope of an *Acanthaceous* seed, forming part of a collection brought by Mr. Holroyd from Upper Egypt, and presented by him to Professor Don. It is of a lenticular form, covered, especially towards the margin, with whitish hairs, which are closely appressed to the surface, and glued together at their extremities, so as rather to resemble corrugations of the testa than distinct hairs; on being placed in water, however, they are set at liberty, and, expanding on all sides, are seen

to consist of fascicles of long, cylindrical, transparent tubes, firmly cohering for about one third of their length, and presenting all the characters of spiral vessels. These fascicles usually contain from five to twenty tubes; each tube inclosing one, two, or occasionally even three, spiral fibres, which adhere closely to the membrane. The fibre may be sometimes seen to divide into two in the upper part of a tube, the branches usually continuing distinct; sometimes, however, after making a few turns, they again coalesce. Towards the free extremity of the tube the fibre is frequently broken up into a number of distinct rings; and in other cases the spire again becomes continuous, after having been interrupted by two or three such rings. In those portions of the tubes which adhere together, the fibre is completely reticulated; towards the extremity, the coils, though quite contiguous, are usually distinct, and readily separate by the expansion of the tube; in the intermediate parts they adhere more firmly together, being connected by slender ramifications of the main fibre. The expansion of the hairs in water is accompanied by a copious discharge of mucilage, which makes its escape by distending and finally rupturing laterally the spiral tubes in which it is contained.

"The testa, which is distinctly visible in the spaces between the hairs, consists of nearly regular hexagonal cells, each containing an opaque mass of grumous matter, which, not filling the entire cavity, leaves a wide transparent border. Cells similar to these, but more elongated and gradually passing into the form of tubes, immediately surround the base of each hair, which appears to be filled up by a conical mass formed of the transparent tubular portions."—p. 65.

Mr. Kippist was induced, by the peculiar appearance of these seeds, to examine those of other genera of the same natural family, with the view of ascertaining to what extent the tendency to develop spiral hairs might prevail, and whether that peculiarity might assist in characterizing genera. He finds that the presence of these cells is not universal in the Acanthaceæ, but has met with many examples, with "a considerable diversity in the structure and arrangement of the hairs which clothe the seeds." He describes the hairs of the seeds of a great number of species of Acanthaceæ, which appear to vary greatly in form and structure. We regret that our limits prevent us from selecting examples. The beautiful illustrations are from the author's own drawings.

X. *Description of a new genus of Plants from Brazil.* By J. MIERS, Esq. F.L.S

Read March 2, 1841.

This is a minute diœcious plant found by Mr. Miers in the Organ mountains, Brazil, in February, 1838. Its texture is quite transparent, and the structure of its flowers very singular. Its position in the system is not accurately determined, but the author is disposed to place it near the Juncagineæ; in habit it resembles some Orchideæ. It is named by the author *Triuris hyalina*—the generic name referring to the three elongated processes of the perianth. The illustrations are from the pencil of the author.

ART. CXX.— *Varieties.*

249. *Note on Agaricus aimatochelis and A. deliciosus.* I have found in a wood near here a considerable quantity of *Agaricus aimatochelis*, which, when Berkeley's book was published, was not known as a native of England. My specimens had the red ring complete. Notwithstanding M. Roque's caution both I and my friends have eaten *Agaricus deliciosus*, and with impunity. It was broiled with pepper, salt and butter, and really was delicious. I have taken a moderate-sized one at a meal.— *George Sparkes; Bromley, Kent, November, 1842.*

250. *Note on Alaria esculenta.* In 1837 Mrs. Griffiths called my attention to the *Alaria esculenta*, and wished me to observe whether a new "frond was pushed out between the stem and the old one, as in *Laminaria digitata* and *L. saccharina*." In consequence I attentively watched the plant during the three succeeding autumns, and as the result of my observations is interesting, and will serve to correct an error in Mr. Harvey's 'Manual of British Algæ,' where the *Alaria* is said to be annual, the following remarks may not be unacceptable to the readers of 'The Phytologist.' In spring the rocks in many parts of Mount's Bay are covered with the young fronds of the *Alaria*: the greater number of these are destroyed in the course of the summer; those more favourably situated remain, and throw out, near the top of the stipes, a few horizontal leaflets. In the autumn, between these and the base of the frond, the stipes becomes elongated, bearing a new frond, which, as in *Laminaria*, at first has the old one attached to its summit. Numerous leaflets are thrown out from a line on each side of the new portion of the stem, and the old leaflets fall off. There is a small interval between the insertions of the old and new leaflets; and although the marks of the former become nearly obliterated, yet by a careful examination they may still be detected, and the age of the plant ascertained. The stipes is therefore elongated whenever a new frond is formed, and this is more than once repeated, as I have frequently observed specimens which have had three sets of the horizontal leaflets.— *John Ralfs; Penzance, December 14, 1842.*

251. *New locality for Grateloupia filicina.* I avail myself of this opportunity to notice a Welch habitat for the rare *Grateloupia filicina*, which Mr. Harvey, in his 'Manual of British Algæ,' mentions as having been found (in this country) only on the shores of Devonshire and Cornwall. In September last I had the pleasure of finding it, rather plentifully, in shallow pools on the rocks in front of the Castle Hill at Aberystwith.— *Id.*

252. *Note on the poisonous effects of Conia.* Your correspondent Mr. Sparkes, from his remarks on the poisonous effects of the seeds (or rather *fruit*) of hemlock (*Phytol.* 459) does not appear to be acquainted with Dr. Christison's experiments on the subject. There can be no doubt of the poisonous nature of the fruit; Dr. C. found that it yielded a much larger quantity of the poisonous alkaloid—*conia*—than the leaves of the plant did. *Conia*, you are aware, is one of the most deadly poisons; a single drop put into the eye of a rabbit, killed it in nine minutes; three drops used in the same way, killed a strong cat in a minute and a half; five drops poured into the throat of a small dog, began to act in thirty seconds, and in as many more, motion and respiration had entirely ceased. *Conia*, when injected into a vein, killed a dog *instantaneously*. The poison has a local irritant effect, and destroys life by causing palsy of the muscles

of respiration, being in this respect the counterpart of strychnia, which kills by causing tonic contraction of the muscles of respiration. In both cases asphyxia is produced, but from different causes. The *green* fruit yields conia in large quantity. A full detail of Dr. Christison's experiments is given in the 'Transactions of the Royal Society of Edinburgh,' vol. xiii. As to Lindley's remark, that the fruit of the Umbelliferæ is in no case dangerous, there surely must be some mistake. So far as I recollect he states, that while the leaves of the Umbelliferæ are always suspicious, the fruit is often aromatic. This remark holds good generally, but there are several important exceptions. Conia is easily decomposed by heat, and hence extracts of hemlock are often inactive. The *dried* leaves also, according to Geiger, contain no alkaloid. These facts will account for the variable effects produced by preparations of hemlock.—*J.H. Balfour* ; 11, *West Regent St., Glasgow, January 4, 1843.*

[The following is the passage referred to.—“The properties of this order require to be considered under two points of view: firstly, those of the vegetation; and, secondly, those of the fructification. The character of the former is, generally speaking, suspicious, and often poisonous in a high degree; as in the case of Hemlock, Fool's Parsley, and others, which are deadly poisons. * * * *The fruit*, vulgarly called the *seed*, is in no case dangerous, and is usually a warm and agreeable aromatic, as Caraway, Coriander, Dill, Anise, &c.”—Lindley's 'Natural System of Botany,' Ed. 2, p. 22. Dr. Lindley also states, after Fée, that the properties of *Conium maculatum* are greatly affected by climate; it being inert and eatable in Russia and the Crimea, although it is extremely dangerous in the south of Europe. It is also stated that for medicinal purposes hemlock should be collected in June, soon after flowering, its energy being much impaired if gathered later.—*Ed.*]

253. *Note on Hierochloa borealis*, (Phytol. 426 and 462). I may mention with regard to this beautiful and interesting grass, that I possess one or two very good specimens, which I purchased along with a few others, forming part of an old herbarium bearing the date of 1805, but unfortunately I could not ascertain the name of the former possessor. The handwriting is in an old style, and the following is a copy of the label:—“*Holcus odoratus*. Calla-glen, Angus-shire mountains; rarissimè!” No date. Possibly these may have belonged to Mr. G. Don, but not being acquainted with his handwriting, I cannot conjecture as to the fact. The word “mountains” would seem to show that “Kelly-glen” near Arbroath could not be the spot intended. I may remark that in my herbarium there are specimens of *Potentilla tridentata* and *opaca*, collected by Mr. G. Don.—*Thos. Edmonston, jun.; Baltasound, Shetland, January 5, 1843.*

254. *On the Hygrometric Qualities of the Setæ of Mosses*. I do not think it has been generally noticed that many mosses possess fully as much of this quality as *Funaria hygrometrica*. *Dicranum cerviculatum*, *varium*, *falcatum* and *strumiferum*; *Orthotrichum crispum*; *Bryum turbinatum*, *capillare*, *julaceum* and *Zierii*; *Trichostomum polyphyllum*, *Tortula fallax* and *enervis*, many *Hypna*, &c., I have observed to have this peculiarity to so great an extent, as to render it difficult to glue them to the paper on which they are preserved. Mosses which were dried under heavy pressure are comparatively destitute of this property. Thus *Funaria hygrometrica*, when the plants are picked and dried separately, has far less than when they had been pressed in tufts, and consequently the setæ little injured by it.—*Id.*

255. *Note on the mildness of the weather*. As an illustration of the mildness of the late season, the following notice of plants, which I gathered on the Derbyshire hills

beyond Mottram, on the 2nd of January of the present year, may prove interesting to some of the readers of 'The Phytologist.' *Vaccinium Vitis-Idæa*, both in flower and fruit, being the second time of its blossoms appearing within the last four months.—*Empetrum nigrum*, several specimens of which still bore the berries of last year; I did not see many with the flowers fully expanded, but if the weather had continued mild they would have been in full bloom in a week or two. Besides these I noticed in full flower about a dozen of the hardy spring weeds,—*Stellaria media*, *Lamium purpureum*, &c., and the following mosses were gathered in fructification.

<i>Grimmia pulvinata</i>	<i>Polytrichum piliferum</i>	<i>Hypnum ruscifolium</i>
<i>Gymnostomum truncatum</i>	<i>Dicranum taxifolium</i>	<i>Bryum pyriforme</i>
<i>Tortula muralis</i>	<i>heteromallum</i>	<i>argenteum</i>
<i>Funaria hygrometrica</i>	<i>Trichostomum lanuginosum</i>	<i>hornum</i>
<i>Polytrichum undulatum</i>	<i>Hypnum plumosum</i>	<i>punctatum</i>

—*Joseph Sidebotham; Manchester, January 10, 1843.*

256. *Note on Onoclea sensibilis.* Perhaps it will be interesting to some of the readers of 'The Phytologist' to know that *Onoclea sensibilis* grows in an old stone-quarry near Warrington. This fern was found in the above locality about four years ago by John Roby, Esq., of Rochdale; the plant is plentiful and grows very luxuriantly. It was also found in the north of Yorkshire a short time ago, by Mr. Baines of York.—*Samuel Gibson; Hebden Bridge, January 12, 1843.*

257. *Note on the Poisonous Properties of the Fruit of Conium maculatum.* Professor Lindley is not the only botanist who has forgotten the qualities of the fruit of *Conium maculatum*, when speaking of the properties of the Umbelliferæ, for I find Dr. Willshire makes the same mistake. In his 'Principles of Botany,' he observes of the Umbelliferæ, that "the fruit is *innocuous*; often stimulating from the essential oil it contains." It is well known that the *leaves* of *Conium maculatum* possess a poisonous quality, which depends on the presence of a peculiar and highly poisonous principle, called *Conia*. This principle is found in greater abundance in the seeds than in the leaves, therefore we might presume them to be more poisonous; yet I know of no case on record of poisoning by the seeds, although many unpleasant effects have been produced when small quantities have been administered. Professor Christison, in making experiments upon animals, administered about thirty grains of an extract prepared from the full-grown seeds; it caused paralysis, convulsions and death, and this proves the fruit of *Conium maculatum* to possess very active and even poisonous properties. Indeed we should always be cautious how we employ the seeds of a poisonous plant, for although in some, as *Papaver somniferum*, they may be harmless, yet in others they possess all the active properties of the plant itself, as in the above example, to which I may also add *Colchicum autumnale*.—*Daniel Wheeler, M.R.C.S.L.; Reigate, January 20, 1843.*

258. *Correction of an error respecting the discovery of Statice tatarica near Portsmouth.* I regret having been the means, though inadvertently, of communicating an error to your pages, in stating *Statice tatarica* to have been discovered by myself near this place, (Phytol. 429). Having had some correspondence with Mr. Borrer on the subject, by whom I have been kindly furnished with specimens of the genuine *S. tatarica* from a foreign locality, and of *S. Limonium*, var. γ . (Smith), from Bosham, at the mouth of the Chichester river, I find that my plant is identical with the latter.—Its chief difference from the real *S. tatarica* consists in the absence of the winged stem, which forms a remarkable feature in that species, The very different appearance,

however, of my plant, from the normal form of *S. Limonium*, will I think admit of a reasonable doubt whether it is not a species distinct from that.—*W. L. Notcutt; Fareham, January 25, 1843.*

ART. CXXI. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, January 12, 1843.—Dr. Douglas MacLagan in the chair. James Irving, Esq. was elected a resident fellow, and Baron Ludwig, — Arden Esq. and Wm. Caldwell Faure, Esq., Cape of Good Hope, non-resident fellows of the Society.

Mr. Goodsir then read two papers by John Ralfs, Esq., Penzance, on the *Diatomaceæ*. In these able papers the author described numerous species, and made some important observations on the structure and habits of these microscopic plants. Specimens were exhibited, and displayed under the microscope.

Mr. Brand read a description of two new species of British mosses, by Dr. Taylor, Dunkerron.

The next paper was entitled “Description of a new species of *Carex*, found near Hebden Bridge, Yorkshire.” By C. C. Babington, Esq., M.A., F.L.S., &c., St. John’s College, Cambridge. The author stated that it was now nearly two years since Mr. S. Gibson, of Hebden Bridge, had forwarded to him a *Carex* which he believed would prove to be a new species. He was now satisfied that is so, and has dedicated it to its discoverer (under the name of *Carex Gibsoni*), than whom no person can be more deserving of commemoration by means of a plant of this genus, to the careful study of which he has long and successfully applied himself.

“Remarks on the Scenery and Vegetation of Madeira.” By Dr. Cleghorn, H.E.I.C.S. Dr. Cleghorn sailed from Spithead for India on the 15th of August, and reached Madeira on the 26th. His own narrative somewhat condensed is as follows.

In the evening of the 26th the vessel sailed into Funchal Bay. The sea was beautifully calm—glittering like a lake—the splash of the dolphin and the scream of the sea-bird being the only sounds. The stupendous mountains which rise behind Funchal, with their gigantic peaks, are very magnificent, and when viewed by moonlight, the general outline of these mountains resembles so much some scenes in the central Highlands, that I should have been impressed with the belief that I had been transported to Caledonia—had not the dense foliage of the plantain, the orange, and other trees fringing the coast, proved its vicinity to the tropics. From whatever quarter the island is approached, the aspect is singularly abrupt and picturesque. Next morning we went on shore. Much care is required in landing, as there is no quay, and the rocks are shelving. When the boat approaches the shore, on a signal being given, eight or ten boatmen yelling aloud, and tugging simultaneously, pull the skiff twenty yards up an inclined plane, so that passengers must *hold fast*, or they are capsized.

After a kind reception at the consul’s residence, where are some splendid views of the neighbouring scenery, I sallied forth to see the lions of Funchal—the cathedral, nunneries, hospital and fortifications. Passing through the market, where were abundance of grapes, figs, dates, oranges, bananas, tomatas, &c., affording a delicious ban-

quiet to not a few of my shipmates, whose diet had consisted chiefly of salt junk, I afterwards sought the public garden or pleasure-ground, where the Portuguese were playing their national airs on the guitar and machetta, and returned to the consul's, carrying as trophies a noble specimen of *Coffea arabica*, and some ripe and unripe fruit of *Citrus Limonum* and *Limetta*.

I started early on the morning of the 27th to have a glimpse of the interior, in company with three shipmates. When entering Funchal Bay two evenings before, a striking edifice, apparently imbedded under a canopy of trellis-work and creepers, had attracted our attention. This conspicuous object, our guides now informed us, was "Nossa Senhora da Monte," or Mount Church, situated three and a half miles up the mountain, behind Funchal. As the land rises rapidly from the coast to the interior, in order to facilitate our progress, long iron spiculæ were appended to the posterior part of our horses' shoes, presenting in an exaggerated degree the appearance of what we call in Scotland *well frosted*. This is necessary, for the angle of inclination of some roads above Funchal is certainly not less than the ascent of Arthur's Seat from the Hunter's Bog. These roads, however, though ill-suited for the progression of the tourist, are well adapted for the descent of the hogsheads of Madeira from the wine-presses above the town. They are paved with small pebbles (nearly equal in size), taken from the ravines and water-courses; and in the interstices between these stones the spiculæ mentioned are securely fixed at each step of the horse. We could not ride two abreast, as the road was only six feet broad in some places; and, speaking for myself, being mounted on a particularly fiery Pegasus, the occasional passing of a sledge, drawn by a couple of pigmy bullocks, was attended with some difficulty.

During the first part of the excursion we traversed a region of terraced vineyards, which are arranged in a singularly beautiful manner, the vines being carried on trellices over the roads, and, occasionally, this refreshing canopy is continued over some acres of rich soil—forming a lovely covering of leaves and fruit. These shady avenues are an agreeable protection from the rays of the sun, and being arched overhead, have the appearance of tunnels: in them the peasants are engaged in vine-dressing during the day—the children sport in the evening—and dogs keep watch by night.

The *Arundo donax*, which attains a height of twenty feet, is cultivated extensively for supporting the vines, and a variety of other purposes.

The soil in the vicinity of Funchal is exceedingly rich, consisting of dark vegetable mould, mixed with the debris of volcanic rock, or of beds of stiff red clay. The latter produces the best vineyards; and a bed of this description, with traces of iron ore, extending to the depth of thirty feet, yielded as fine produce as any that we passed in the island.

As we rose from this lower region, where the mountain was clothed with vines and figs, and where flocks of canaries of a lively green flew around, we plodded on through orange bowers and festoons of fragrant jasmine (*Jasminum odoratissimum*). The proud sunflower here overtopped the modest *Heliotrope*. There were patches of *Coffea arabica* (in cultivation), *Cucurbitaceæ* in great abundance, — gourds, melons, pumpkins and cucumbers. We noticed, surrounding a merchant's villa, a stout hedge of *Fuchsia*, and some scattered specimens of *Passiflora edulis* and *quadrangularis*. The *Cactaceæ*, singular in appearance and various in habit, showed their spiny heads and handsome petals, their roots being sometimes firmly secured in the crevices of the granite. Here were plants of which we have no example in the north. The vegetation was of a different character from anything I had seen.

It was evident, however, that many of the rare flowers were not indigenous — but it was not easy to distinguish those that had been introduced, as the whole country at this elevation had the appearance of an ornamental garden.

There was a scene of life and motion amongst the herbage, of which our Scottish forests afford no idea—the leaves of some shrubs being covered with brilliant beetles; the abundant foliage giving plentiful nourishment to the swarms of insect tribes. — Larks in great numbers were carolling merrily, and kestrels hovering on the mountain side.

We dismounted to examine the pictures and architecture of the Mount Church, dedicated to Santa Maria, and from our now elevated position enjoyed a truly magnificent view (the platform and gateway were mantled with luxuriant shoots of *Lonicera* and *Clematis*). Below us lay the town and bay of Funchal; eastward, the singular promontory which we had rounded on entering the bay, and which is known to visitors by the name of the Brazen Nose; and to the west, beyond the tract of vineyards, is an extensive race-course, with a range of steep craggy rocks jutting out into the sea.

In pursuing the ascent, we rode along a sharp ridge leading to the Caldeira, or highest peak of the island, on which is a well-supplied ice-house. This is the range of the Pines and Spanish Chesnuts, and the timber here was not contemptible.

Closely adjoining, at a greater elevation, were many species chiefly of the *Labiata* and *Caryophyllæ*. We were now on either side the yawning depth of ravines, where, after a few hours' rain, most formidable torrents rush down the adjacent valley to the ocean. There were some remarkably fine specimens of *Gymnogramma Loweii* (named in honour of the resident English clergyman, a scientific naturalist) amongst the wet rocks of a narrow cleft, through which we passed in crossing a watercourse; of these specimens, some were singular varieties.

Sundry were the risks, as we slowly jogged down the mountain, keeping tight the bridle-reins, and the horses occasionally sliding on their haunches. Thus terminated a visit to Madeira, which the novelty of the scenes—the hospitality of the British consul and Portuguese merchants, and the kind attention of the house-surgeon of the hospital (an Edinburgh graduate), had rendered one of great pleasure and gratification.

BOTANICAL SOCIETY OF LONDON.

November 29, 1842.—Sixth Anniversary Meeting; J. E. Gray, Esq., F.R.S., President, in the chair. From the Report of the Council it appeared that 13 new members had been elected since the last anniversary, and that the Society consisted of 152 members.

The donations to the Library had been very considerable.

The Report of the Herbarium Committee was read, and stated that the British herbarium had been in reference order for some time, and the Committee were using their best exertions to obtain the Society's desiderata, which had lately been considerably diminished by the receipt of many rare plants from Mr. G. Francis and Mr. S. P. Woodward, the latter gentleman having presented a large series of British mints, collected by the late Mr. Sole of Bath.

Many valuable parcels of British and foreign plants had been received, and the return parcels sent to the members had given the greatest satisfaction, in many instances the return parcel having been sent within ten days after the receipt of the parcel

from the member. The Committee anticipate that in future the return parcel will regularly be sent within ten days after the receipt of a parcel from any contributor.

Amongst the most valuable parcels received during the past season, may be mentioned a large collection of British plants from Mr. Hewett C. Watson, comprising upwards of 5500 specimens; also numerous Jersey plants from Mr. G. H. K. Thwaites. A large collection of Shropshire *Rubi* from Mr. H. Bidwell; 300 specimens of *Bupleurum falcatum* collected in Essex, from Mr. E. Doubleday; and numerous specimens of *Lastræa cristata*, collected in Norfolk by Mr. B. D. Wardale, and presented by that gentleman.

The Committee pointed out the necessity of members sending two labels with each specimen, one for permanent preservation in the label-book, which the Committee anticipate will, in the course of a few years, be valuable as an authentic register of the localities of plants, and prove highly serviceable in showing the geographical distribution of the species. Many interesting monstrosities had been received from several of the members; and the Committee impressed upon the members the importance of collecting monstrosities, and their value in a public collection.

Local Herbaria.—The Society had received from Mr. Edwin Lees a herbarium of the Malvern Hills, including the Cryptogamic plants; accompanied with many valuable remarks upon the geographical distribution of the plants of the neighbourhood, together with the geological character of the neighbouring hills: and the Committee hope next year to be able to report the receipt of other local herbaria now in course of formation for the Society.

Cryptogamous Plants.—The collection of mosses, lichens and Algæ received during the past season, had been more considerable than during any former period; and the first three volumes of 'Algæ Danmonienses,' and part 1 of Berkeley's 'British Fungi,' had been presented to the Society by Mrs. Margaret Stovin. Mr. S. P. Woodward is now actively engaged in arranging the whole Cryptogamic collection.

Foreign Plants.—These form a valuable part of the Society's collection, and comprise plants from North and South America, British Guiana, New South Wales, Cape of Good Hope, Sierra Leone, China, and various other parts of the world.

Among the more interesting plants in this collection may be mentioned about 350 species collected by Mr. R. H. Schomburgk in British Guiana, and presented by him; 250 species collected in Natal, South Africa, by Dr. F. Krauss; many thousand specimens collected in North America by Dr. Gavin Watson, and presented by him; and numerous species from Dr. C. F. S. De Martius, collected by him in South America.

Museum.—Numerous specimens of sections of woods, seed-vessels, barks, and several large collections of seeds, had been received, many of them purchased at the sale of the botanical museum of the late A. B. Lambert, Esq., and presented by some of the members.

The Reports of the Council and Herbarium-committee were unanimously adopted, and a ballot then took place for the Council for the ensuing year, when the chairman was re-elected President, and he nominated J. G. Children Esq., F.R.S., and Hewett C. Watson, Esq., F.L.S., Vice-Presidents; Messrs. E. Doubleday, G. Francis, and J. G. Mitchell were elected new members of the Council, in the room of Dr. Meeson, Messrs. G. Cooper and W. H. White, who retire from the Council in accordance with the Rules of the Society. Mr. J. Reynolds, Mr. G. E. Dennes and Mr. T. Sansom were respectively re-elected Treasurer, Secretary and Librarian.—*G. E. D.*

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No. XXII.

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ART. CXXII. — *Notice of a new British Cerastium.*

By THOMAS EDMONSTON, jun., Esq.*



CERASTIUM LATIFOLIUM, *Linn.*

HAVING for some years entertained the opinion that the plant above figured, although generally referred to *Cerastium latifolium*, was distinct from the plant called by that name in Britain, I have paid considerable attention to our alpine *Cerastia*, and am disposed to conclude that my plant is truly distinct from the *C. latifolium* of Smith and Hooker. I am happy to be able to say that my valued and eminent

* Communicated by Charles C. Babington, Esq., M.A., F.L.S.

friend Mr. Babington, on a careful study of the subject, concurs in this opinion, and I am delighted to fortify my own view with that of so distinguished an observer.

After attentively comparing numerous specimens, both recent and dried, of the *C. alpinum* and *latifolium* of our Scotch and Welch mountains, I am perfectly unable to detect any specific difference between them. Sir W. Hooker, in 'Flora Scotica,' gives as the main distinction, the capsules in *C. alpinum* being "oblong, curved," and in *C. latifolium* "ovate," (Fl. Scot. 144); while in 'British Flora,' ed. 3, p. 217, he says, "I agree with Mr. Wilson in thinking that there exists scarcely any difference, either in the flower or fruit, between this (*C. latifolium*) and the preceding (*C. alpinum*); in both, the capsules are broadly oblong, shining, nearly twice as long as the calyx," &c., and the distinguishing characters between the two plants seem to be only in the pubescence, viz., *C. alpinum* being "clothed with long silky hairs," and *C. latifolium* "clothed with short, rigid, yellowish pubescence." After a careful examination of numerous specimens I have drawn up the following descriptions, and shall then endeavour to establish the essential characters of the three plants, viz., the one from Shetland, and the *C. alpinum* and *latifolium* of our authors.

Cerastium latifolium, (Linn.)

Plant 2—5 inches high, branching; *stems* prostrate for about half their length, then ascending, never rooting; whole plant covered with a dense, short, glandular *pubescence*; *leaves* orbicular, obtuse, dark green; *bracteas* herbaceous, lanceolate, acute; *sepals* blunt, with a membranous border half their own breadth; *peduncles* one-flowered, equalling the flower; *flowers* large, white, with green veins in the inside; *petals* bifid at the apex; *capsule* ovate, shining, scarcely longer than the calyx, opening with ten valves.

This seems to be the original plant of Linnæus, and the *C. latifolium* of the continental botanists, for I have specimens communicated by M. Leresche from the Alpes du Vallais, exactly similar to the Shetland specimens, except in having the leaves slightly acute; and Mr. Babington writes me that Reichenbach, in his 'Icones Floræ Germanicæ,' figures the form as "*C. latifolium*, var. *glaciale*, of Gaudin, Fl. Helv."

Abundant on a serpentine hill to the north of the bay of Baltasound, Unst, Shetland, extending over about a square mile of ground. This station is interesting as being the only one hitherto known in Britain

for *Arenaria norvegica*. I am not aware of any other British habitat for it, neither have I seen any foreign specimens.

Cerastium alpinum, Linn.

α. Linnæanum, (Bab. in Mag. Zool. and Bot. ii. 202). *C. alpinum*, Linn., Eng. Bot. 472; Hook. Fl. Scot. 144; Br. Fl. 216.

Plant 2 — 5 inches high; *stems* ascending, mostly simple; plant covered with a long, white, silky *pubescence*; *leaves* ovato-lanceolate, acute; *bracteas* with a narrow membranous border; *sepals* sometimes with a narrow membranous border; *flowers* one, two, or three together in a forked panicle; *peduncle* considerably longer than the flower; *flowers* as in the last; *capsule* broadly ovate, shining, twice as long as the calyx, opening with ten teeth.

β. piloso-pubescens, (Benth. in Lindl. Syn. ed. 1, 51). *C. latifolium*, Sm., Eng. Bot. 473; Hook. Fl. Scot. 144; Br. Fl. 216.

Stems generally branched, ascending, sometimes rooting at the base; *plant* with a short, rigid ("yellowish" Hook.), *pubescence*; *leaves* oblong, acute; *bracteas* often wanting, when present mostly with a narrow membranous margin; *peduncles* generally one-flowered, longer than the flower; *capsule* as in the last.

Of this plant Mr. Babington says "I believe that it is correctly referred by Bentham to the *C. alpinum* as *β. piloso-pubescens*," (Bab. in litt.)

This, with the last, grows on the more elevated mountains of Scotland, as well as on Snowdon, and I believe other Welsh mountains. *β.* seems less common than *α.*, but I have specimens from several mountains of the Cairngorum range, as well as Clova, &c.

From these observations I think it will be evident not only that the Shetland plant is distinct, but that there exists no specific difference between *C. alpinum* and *latifolium*, Sm. and Hook. The differential characters I propose are the following.

C. alpinum, Linn. Leaves ovate or ovato-lanceolate, acute; bracteas with a membranous border; sepals with scarcely any border; peduncle longer than the flower; capsule twice as long as the calyx.

C. latifolium, Linn. Leaves orbicular, obtuse; bracteas without the membranous margin; sepals with a broad border; peduncle as long as a flower; capsule scarcely longer than the calyx.

The following figures will exemplify the many distinctive characters of these plants.



Fig. 1. End of a flowering branch and capsule of *C. latifolium*, *a* Hab. Baltasound

Fig. 2. The same of *C. latifolium*, *glaciale*: Alps of the Vallais, Switzerland.

Fig. 3. *C. alpinum*, *a*. Clova, Forfarshire.

Fig. 4. *C. alpinum*, *β* (*C. latif*): Clova.

THOS. EDMONSTON, JUN.

Baltasound, Shetland,
January 23, 1843.

ART. CXXIII. — *Catalogue of Plants observed in the neighbourhood of Daventry, Northamptonshire.* By MR. W. L. NOTCUTT.

IN forwarding a list of the plants of Daventry, Northamptonshire, I have thought that a sketch of the general character and geological formation of the neighbourhood might not be unacceptable, as I think it of importance to trace the connexion between Geology and botanical Geography. Daventry is a market-town seventy-two miles from London, and is situate in the western part of the county of Northampton. The geological formation upon which it stands is the lower oolite, which however terminates at the distance of two or three miles on the north-western side of the town, where the lias formation appears from beneath it: on the other side it extends over nearly the whole county of Northampton. In many parts of the neighbourhood the coarse yellowish oolitic limestone lies within two or three feet of

the surface, and is quarried for mending the roads. In these spots I do not think any plants of interest have been noted. The oolite is characterized by its peculiar fossils, as pectens, Terebratulæ, Ammonites, Belemnites, &c., many species of which are found in the stone-pits near the town in great abundance. On the south side of the town is Borough Hill, which is chiefly composed of sand, with nodules of sandstone, and which probably belongs to the oolitic period. On the top of this hill is a Roman entrenchment, within and on the borders of which are found many rare plants: the hill has been enclosed within the last fifty years. Three other hills on the other sides of the town, viz., Newnham Hill, Fox Hill and Welton Hill, appear to be composed of the same kind of sand as Borough Hill, but they are rather barren of interest in a botanical point of view. Two large reservoirs, formed for the purpose of supplying the Grand Junction Canal with water, are situated within a mile of the town, and bear on their margins a few aquatic and marsh plants worth notice, but from their recent formation it is not to be expected that a great variety will be found at present. Watling Street, one of the old Roman roads, runs within three miles of the town, and contains one or two very interesting species.

Many of the plants which grow around Daventry are remarkably local there, being found in only one or two spots: and this feature prevails to a greater extent than I have noticed anywhere else. I may just add that the following list is the result of a diligent investigation of the neighbourhood within a distance of three or three and a half miles from Daventry, during a residence there of between three and four years.

<i>Anemone nemorosa</i> . Daventry and Badby woods; Borough-hill	<i>Berberis vulgaris</i> . Rare: hedges at Staverton
<i>Ranunculus hederaceus</i> . Rare: pool on Borough-hill	<i>Papaver dubium</i> . Rare: Norton road
———— <i>aquatilis</i> . The reservoirs	———— <i>Rhæas</i> . Corn-fields, common
———— <i>Flaminula</i> . Old reservoir and Badby wood	———— <i>Argemone</i> . Rare: Borough-hill and Ashby road
———— <i>auricomus</i> . Norton & Buckby roads	<i>Chelidonium majus</i> . Rare: Everdon lane
———— <i>acris</i> and <i>bulbosus</i> . Common	<i>Fumaria officinalis</i> . Fields, common
———— <i>arvensis</i> . Borough-hill &c.	<i>Draba verna</i> . Walls, common
———— <i>repens</i> . Ashby road	<i>Thlaspi Bursa-pastoris</i> . Common
———— <i>hirsutus</i> . Rare: Ashby road: Newnham	———— <i>arvense</i> . Borough-hill
———— <i>Ficaria</i> . London road	<i>Coronopus Ruellii</i> . Local: Abbey wood
<i>Caltha palustris</i> . The reservoirs	<i>Cochlearia Armoracia</i> . Rare: new reserv.
	<i>Cardamine pratensis</i> and <i>hirsuta</i> . New reservoir and Newnham
	<i>Erysimum Alliaria</i> . Ashby & London rds.

- Barbarea vulgaris*. Ashby & Norton rds.
Sisymbrium officinale. Roadsides, com.
Nasturtium officinale. Old reservoir; Staverton
 ——— *terrestre*. Local: new reserv.
 ——— *amphibium*. Local: canal at Braunston
Raphanus Raphanistrum. Newnham hill
Sinapis alba. Fields by Buckby road
 ——— *arvensis*. Common in cornfields
Brassica Napus. Field by Buckby road
Viola odorata. Weedon road; Newnham
 ——— *canina*. Common
 ——— *tricolor*. Borough-hill
 ——— *hirta*. Rare: Borough-hill, in the entrenchments
Polygala vulgaris. Badby wood; glen by Staverton toll-gate
Silene anglica. Rare: flds on Borough-h.
 ——— *inflata*. Local: Norton and Ashby roads
Agrostemma Githago. Borough-hill
Lychnis diurna. Daventry and Badby woods; Borough-hill
 ——— *vespertina*. Borough-hill; Welton road
 ——— *Flos-cuculi*. The reservoirs
Sagina procumbens. Burnt walls; Borough-hill
Spergula arvensis. Local: Borough-hill
Stellaria media. Common everywhere
 ——— *graminea* and *holostea*. Daventry wood and Borough-hill
Arenaria serpyllifolia. Walls in the town
 ——— *trinervis*. Copseat Welton-bridge
 ——— *rubra*. Local: Borough-hill
Cerastium viscosum. Common by road-si.
 ——— *arvense*. Local: Borough-hill
 ——— *aquaticum*. New reservoir and Norton road
Linum catharticum. Staverton glen; old reservoir; Badby
Malva sylvestris. Staverton road &c.
 ——— *rotundifolia*. Local: Norton and Badby
Tilia europæa. Welton road; church-yd.
Hypericum quadrangulum. London road; Borough-hill
Hypericum hirsutum. Rare: Badby road, near the bridge
 ——— *pulchrum*. Local: Staverton wood; Borough-hill
Acer campestre & *Pseudo-platanus*. Buckby road
Geranium robertianum. Welton and Badby roads
 ——— *dissectum*. New reservoir; Staverton road
 ——— *pratense*. Local: new reservoir
 ——— *molle*. Ashby rd.; Borough-h.
Oxalis Acetosella. Daventry, Staverton and Badby woods
Ononis arvensis. Norton and Badby rds.
 ——— *spinosa*. Ashby road
Lathyrus pratensis. New reservoir; Badby wood
 ——— *sylvestris*. Local; Badby wood
Vicia sepium. Badby road and wood
 ——— *Cracca*. Local: new reservoir; Welton canal
 ——— *sativa*. Borough-hill; new reservoir
 ——— *sylvatica*. Badby wood
Orobis tuberosus. Daventry, Staverton and Badby woods
Ulex europæus. Borough-hill; Newnham hill
 ——— *nanus*. Badby wood
Trifolium repens. Very common: proli-ferous, Norton road
 ——— *pratense*. Common
 ——— *procumbens* and *filiforme*. Borough-hill
Melilotus officinalis. Ashby road; near Braunston
Lotus corniculatus. Ashby & Norton rds.
 ——— *major*. Dunslade; Borough-hill; Badby road
Cytisus scoparius. Pond between Flecknoe and Drayton
Ervum hirsutum and *tetraspermum*. Borough-hill
Hedysarum Onobrychis & *Medicago lupulina*. Borough-hill
Prunus spinosa. Hedges, very common
 ——— *Cerasus*. Rare: Catesby and Staverton roads

- Prunus domestica*. Local : Borough-hill
Spiræa Ulmaria. The reservoirs
Geum urbanum. Road-sides, common
Rubus corylifolius. Staverton road
 — *idæus*. Borough and Newnham hills; Staverton glen
 — *fruticosus*. Hedges, very common
 — *cæsius*. Daventry wood; Borough-hill
Fragaria vesca. Daventry & Badby wds.
Potentilla anserina, *reptans* and *Fragariastrum*. Common
Tormentilla officinalis. Staverton and Badby woods
Agrimonia Eupatoria. Daventry wood
Alchemilla arvensis. Local : Borough-hill
Sanguisorba officinalis. Rare : new reservoir; road between Norton and Brockhall
Poterium Sanguisorba. Buckby road; Burnt walls; old reservoir
Rosa canina. Hedges, common
 — *arvensis*. Staverton road & Borough-hill
 — *spinosissima* and *sarmentacea*. Rare : Borough-hill
Cratægus Oxyacantha. Very common
Pyrus communis. Rare : near Welton br.
 — *Malus*. Borough-hill; Thrupp
 — *torminalis*. Rare : Norton road
Epilobium hirsutum. New reservoir; London road; Badby wood
 — *montanum*. Badby and Staverton woods
 — *parviflorum*. Old reservoir; Dodford
 — *tetragonum*. Borough-hill; Badby
Circæa Lutetiana. Daventry and Badby woods; Watling-street road
Myriophyllum spicatum. Old reservoir
Callitriche aquatica. New reservoir; Borough-hill
Scleranthus annuus. Borough-hill
Sedum acre. Walls and roofs, common
 — *reflexum*. Walls and roofs, Badby
Ribes Grossularia. Staverton and Norton roads; Staverton glen
Ribes rubrum. Staverton glen
Saxifraga granulata. New reservoir
 — *tridactylites*. Walls
Adoxa Moschatellina. Local : Borough-hill; Staverton glen
Daucus Carota. Norton and Ashby roads
Torilis nodosa. Local : Borough-hill
 — *Anthriscus*. London and Norton roads
Heracleum Sphondylium. New reservoir
Pastinaca sativa. Field between Ashby and Welton road
Angelica sylvestris. Daventry and Badby woods; London road
Bunium flexuosum. Norton road; old reservoir &c.
Pimpinella Saxifraga. Dodford; Borough-hill
Sium angustifolium. Dunslade; Braunston canal
Cnidium Silaus. Old reservoir
Ægopodium Podagraria. Newnham hill; Staverton road; Badby
Æthusa Cynapium. Staverton road
Sison Amomum. Rare : Welton road
Helosciadium nodiflorum. New reservoir; Staverton glen
Chærophyllum temulentum. Near new reservoir
Anthriscus sylvestris. Norton and London roads
 — *vulgaris*. Norton road
Scandix Pecten-Veneris. Borough-hill; Newnham hill
Conium maculatum. Buckby road and fields adjoining
Sanicula europæa. Daventry wood; Badby
Eryngium campestre. Watling-street road near Brockhall. It is probable that this celebrated plant will not much longer exist in the above locality; it is now nearly extirpated, in consequence of the rapacity of some botanical collectors, and the fondness of cattle for it. A specimen may however still be found now and then by careful and diligent search
Hedera Helix. Badby road

- Cornus sanguinea*. Norton road
Sambucus nigra. Welton & Ashby roads; Borough-road
Viburnum Lantana. Staverton road.
 ——— *Opulus*. Staverton, Daventry and Badby woods
Lonicera Periclymenum. Norton road; Daventry and Badby woods
Galium verum. Buckby and Badby rds.
 ——— *saxatile*. Borough-hill; Badby wd.
 ——— *cruciatum*. Norton & Badby rds.
 ——— *mollugo*. Local: Badby wood
 ——— *palustre*. The reservoirs
 ——— *uliginosum*. Borough-hill; new reservoir
 ——— *Aparine*. Very common
Asperula odorata. Local: Badby wood
Sherardia arvensis. Borough-hill
Valeriana officinalis. Daventry and Badby woods
 ——— *dioica*. New reservoir; Staverton glen
Fedia dentata and *olitoria*. Borough-hill
Scabiosa succisa. Local: Badby wood
Knautia arvensis. Ashby road; Drayton
Dipsacus sylvestris. Watling-street road; Badby and Buckby roads [lands
 ——— *pilosus*. Brook at bottom of In-
Leontodon Taraxacum. Common everywh.
Sonchus arvensis. Borough-hill
 ——— *oleraceus*. Staverton and Badby roads: var. *asper*; Badby road
Crepis virens. Ashby road
Apargia hispida. Burnt walls; Badby rd.
 ——— *autumnalis*. Road between Norton and Brockhall
Hieracium Pilosella. Local: Borough-hill by Castell's farm
 ——— *sabaudum*, *umbellatum*, *sylvaticum* & *maculatum*. Rare: Borough hill, in the entrenchments
Tragopogon pratensis. Ashby road; field by Norton road
Lapsana communis. Norton & Badby rds.
Helminthia echioides. London road, a single plant, 1841
Serratula tinctoria. Daventry wood; Borough-hill
Arctium Lappa. London road &c.
Carduus nutans. Field by Buckby road
 ——— *acanthoides*. Meadow south of new reservoir
Cnicus palustris. Old reservoir
 ——— *arvensis*. Braunston and London roads; Borough-hill
 ——— *lanceolatus*. London road
 ——— *acaulis*. Ashby road, a single plant, 1841
Bidens tripartita. Old and new reservoirs
Tussilago Farfara. Old reservoir; Staverton glen
Petasites vulgaris. Meadow south of new reservoir
Senecio vulgaris. Very common
 ——— *aquaticus*. Dunslade; new reser.
 ——— *sylvaticus*. Local: Borough-hill; Daventry wood
 ——— *tenuifolius*. Dodford; Ashby rd.; Borough-hill
 ——— *viscosus* ? Borough-hill
Bellis perennis. Everywhere
Chrysanthemum Leucanthemum. Borough hill; old reservoir
 ——— *segetum*. Local: Borough hill
Matricaria Chamomilla. Ashby and Welton roads
Anthemis Cotula. Fields east of new reservoir; Borough-hill
 ——— *arvensis*. Rare: cornfields between Newnham and Everdon
Gnaphalium uliginosum. Old reservoir; Drayton [hill
 ——— *germanicum*. Rare: Borough
Inula dysenterica. Dodford; Welton rd.
Solidago Virgaurea. Local: entrenchments on Borough-hill
Achillea Millefolium. Norton road; Borough hill
Centaurea nigra. Drayton
 ——— *Scabiosa*. Local: field by Norton road
 ——— *Cyanus*. Local: Borough-hill; Newnham hill
Campanula rotundifolia. Borough-hill; new reservoir

- Campanula latifolia*. Rare : near Thrupp farm ; Watling-street road
- Jasione montana*. Rare : Borough-hill
- Calluna vulgaris*. Local : Badby wood ; Borough-hill
- Ligustrum vulgare*. Staverton and Buckby roads
- Fraxinus excelsior*. Norton and Buckby-roads
- Menyanthes trifoliata*. Rare : old reserv.
- Erythræa Centaurium*. Badby wood ; Welton road
- Convolvulus sepium*. Rare : Dodford
- *arvensis*. Common
- Myosotis arvensis*. Old reservoir, &c.
- *versicolor*. Borough-hill
- *palustris*. New reservoir ; canal at Braunston
- Lithospermum arvense*. Rare : Borough-hill
- Symphytum officinale*. Ditches near new reservoir ; brook between Newnham and Badby
- Hyoscyamus niger*. Rare : Thrupp
- Solanum Dulcamara*. Norton and Welton roads
- Linaria Cymbalaria*. Dodford
- *vulgaris*. Rare : Borough-hill
- Scrophularia nodosa*. Badby wood
- *aquatica*. New reservoir ; Staverton
- Melampyrum pratense*. Daventry & Badby woods
- Pedicularis sylvatica*. Badby wood ; Staverton glen
- *palustris*. Rare : old reservoir, Mr. R. H. Smith
- Rhinanthus Crista-galli*. Old reservoir
- Euphrasia officinalis*. Old reservoir ; Badby wood
- Bartsia Odontites*. Ashby rd. ; Borough-h.
- Veronica officinalis*. Borough-hill ; Badby wood
- *serpyllifolia*. New reservoir ; Borough-hill
- *Beccabunga*. New reservoir ; Welton and Badby road : a pink-flowered variety, Welton road
- Veronica Anagallis*. Old reservoir
- *Chamædrys*. Welton road, &c.
- *hederifolia*. Very common
- *arvensis*. Dog-lane ; fields by path to Flecknoe
- *agrestis*. Borough-hill
- Lycopus europæus*. Rare : the canal at Braunston
- Ajuga reptans*. Daventry and Badby wds. Norton road
- Galeobdolon luteum*. Daventry and Staverton woods
- Ballota nigra*. Welton and London roads
- Betonica officinalis*. Old reservoir ; Norton road ; Badby wood
- Galeopsis Tetrahit*. Borough-hill, abundant ; Badby road
- *versicolor*. Local : Cornfield by footpath to Flecknoe
- Lamium album*. Roadsides, common
- *purpureum*. Staverton road &c.
- *plexicaule*. Rare : Borough-h
- Stachys arvensis*. Local : Borough-hill
- *sylvatica*. Borough-hill ; Norton, London and Ashby roads
- Glechoma hederacea*. Very common
- Mentha hirsuta*. Old reservoir
- *arvensis*. Local : Dunslade
- *sylvestris*. Rare : canal, Braunston
- Thymus serpyllum*. Field by old reservoir
- *Calamintha*. Local : Borough-h.
- Clinopodium vulgare*. Norton road ; Watling-street road [wood
- Prunella vulgaris*. Old reservoir ; Badby
- Scutellaria galericulata*. Side of canal from Braunston to Buckby locks
- Primula veris*. Old reservoir &c.
- *vulgaris*. Badby, Staverton and Daventry woods
- Lythymachia nemorum*. Daventry and Badby woods
- *Nummularia*. New reservoir
- Anagallis arvensis*. Braunston road ; Borough-hill
- Plantago media* and *lanceolata*. Very com.
- *major*. Badby road
- Chenopodium album*. Borough-hill ; fields by Staverton road

- Chenopodium rubrum*. Ashby road; new reservoir
- Atriplex patula*. Dunslade
- Rumex Acetosa*. New reservoir
- *Acetosella*. Daventry wood; Borough-hill
- *crispus*. Fields by Welton road
- *acutus* and *pulcher*. Borough-hill
- Polygonum aviculare*. Very common
- *Bistorta*. Rare; meadow near Badby
- *Convolvulus*. Fields on Borough-hill; Buckby road
- *Persicaria*. Borough-hill
- *amphibium*. Old reservoir
- *lapathifolium*. Borough-hill; fields near Staverton wood
- *Hydropiper*. Local: Badby wood; Borough-hill
- Euphorbia exigua*. Fields by Staverton toll-gate
- *Peplus*. Cultivated ground
- *Helioscopia*. Fields south of new reservoir
- Mercurialis perennis*. Ashby road; Badby wood
- Urtica dioica*. Everywhere
- *urens*. Local: Welton road
- Humulus Lupulus*. Head of new reservoir
- Ulmus campestris*. London road &c.
- Betula alba*. Staverton road
- Salix oleifolia*. Staverton glen
- *acuminata*. Staverton road; Badby wood
- *caprea*. Ashby road; Badby wood
- *viminalis*. New reservoir; Staverton glen
- *alba*. New reservoir
- *cinerea*. Staverton and Badby wds.
- *aquatica*. Old reservoir
- *rubra*, *vitellina* and *triandra*. Staverton glen
- Populus alba*. Road-sides
- *nigra*. Pope-well; new reservoir
- Fagus sylvatica*. Badby road
- Castanea vesca*. Daventry wood
- Quercus Robur*. Borough-hill &c.
- Corylus Avellana*. Daventry & Badby wds.
- Butomus umbellatus*. Rare: the canal at Braunston
- Alisma Plantago*. The reservoirs; Pope-well
- Sagittaria sagittifolia*. Rare: canal at Braunston
- Potamogeton crispus*. Pope-well
- *fluitans*. Old reservoir
- *natans*. Pope-well; Borough-hill
- *lucens*. New reservoir; canal at Braunston
- *perfoliatus*. Rare: canal at Braunston
- Orchis mascula*. Local: Badby wood
- *Morio*. Local: Thrupp farm
- *maculata*. Daventry & Badby wds.
- *latifolia*. Rare: old reservoir
- Gymnadenia bifolia*. Rare: Badby wood
- Listera ovata*. Rare: new reservoir; Badby wood
- Epipactis latifolia*. Rare: Daventry wd.
- Iris Pseud-acorns*. Rare: new reservoir
- Tamus communis*. Newnham hill; Badby wood
- Scilla nutans*. Daventry, Staverton and Badby woods; var. *flore albo*, rare, Borough-hill
- Allium ursinum*. Local: banks of a shady ditch at Badby
- Juncus conglomeratus*. Ashby road; Badby wood
- *lampocarpus*. Old reservoir
- *effusus*. Borough-hill
- *obtusiflorus*. Rare: old reservoir
- *bufonius*. Pope-well; new reservoir; Watling-street road
- *glaucus*. Dunslade; Ashby road
- *acutiflorus*. Rare. Badby wood
- Luzula campestris*. Meadows
- *congesta*. Rare: Badby wood
- *pilosa*. Daventry, Staverton and Badby woods
- Arum maculatum*. London road; Inlands
- Typha latifolia* and *angustifolia*. Old res.
- Sparganium ramosum*. New reservoir
- *simplex*. Rare: old reservoir
- Eleocharis palustris*. The reservoirs

- Scirpus lacustris*. Old reservoir
Carex intermedia and *ovalis*. Rare : old reservoir
 — *sylvatica*. Daventry & Badby wds.
 — *recurva* and *riparia*. New reservoir
 — *cæspitosa*. Old reservoir
 — *paludosa*. Pope-well and Staverton glen
 — *hirta*. Rare : Staverton glen and old reservoir
 — *paniculata*. Rare : Staverton glen
 — *præcox*. Meadow in Staverton glen
Agrostis vulgaris. Borough-hill
Milium effusum. Local : Daventry wood
Phalaris arundinacea. The reservoirs
Phleum pratense. Meadows by old reservoir ; Drayton
Alopecurus pratensis. Common
 — *geniculatus*. East side of Borough-hill ; old reservoir
 — *agrestis*. Fields by Staverton toll-gate
 — *fulvus*. Rare : new reservoir
Anthoxanthum odoratum. Common
Melica uniflora. Local : Lane at Badby ; Daventry wood
Aira cæspitosa. Daventry wd. ; new reser.
 — *flexuosa*. Rare : Daventry wood
Holcus avenaceus. London and Ashby rds. new reservoir
 — *lanatus*. London road ; Borough-hill
 — *mollis*. Borough-hill
Avena fatua. New reservoir
 — *flavescens*. The reservoirs ; London road
Bromus mollis. Common
 — *sterilis*. Staverton and Norton rds
 — *asper*. Newnham hill ; Norton & Braunston roads
 — *racemosus*. Local : Borough-hill
Festuca duriuscula. New reservoir ; Borough-hill
 — *gigantea*. Norton road ; Watling-street road
 — *elatior*. New reservoir ; Pope-well ; Norton-road
 — *myurus*. Rare : wall at Drayton
Dactylis glomerata. Common
Glyceria fluitans. Pope-well ; Newnham ; old reservoir
 — *aquatica*. Rare : the canal at Braunston
Poa annua. Very common
 — *pratensis*. Walls ; Badby wood
 — *trivialis*. Common
Catabrosa aquatica. Pope-well
Briza media. Old reservoir
Cynosurus cristatus. Common
Triticum repens. London road &c.
Lolium perenne. Very common
Hordeum murinum. London road
 — *pratense*. Field by London road ; old reservoir
Lemna minor. Old reservoir ; Pope-well
Equisetum arvense and *palustre*. Old res.
 — *limosum*. The reservoirs
 — *sylvaticum*. Rare ; Badby wd.
 — *fluviatile*. Badby wood ; Staverton wood and glen
Pteris Aquilina. Borough-hill ; Badby wood, &c.
Lastræa Filix-mas. Ditto
 — *dilatata*. Rare : Badby and Staverton woods
Polystichum lobatum. Rare : Newnham lane
Polypodium vulgare. Borough-hill
Ophioglossum vulgatum. Staverton, in two meadows between the toll-gate and the village ; Thrupp farm

Besides the plants in the foregoing list, the following have been mentioned, in various county histories and similar publications, as growing within this district ; but after diligent search I have failed to detect them. *Genista anglica*, *Eriophorum polystachion*, *Agrostis stolonifera*, *Bromus erectus*, *Parnassia palustris*, *Allium vineale*, *Arenaria verna*, *Spergula subulata*, *Carduus tenuiflorus*, *Scirpus sylvati-*

cus, Cotyledon Umbilicus, Cladium Mariscus, Sambucus Ebulus, Sedum Forsterianum, Verbena officinalis, Campanula Rapunculus, Juncus bulbosus, Montia fontana, and Polypodium Rhœticum, (*With.?*)

ENUMERATION.

SPECIES.		SPECIES.		SPECIES.	
Ranunculaceæ ...	12	Brought up.....	130	Brought up.....	294
Berberideæ	1	Grossulariæ	2	Plantagineæ	3
Papaveraceæ	4	Saxifrageæ	3	Chenopodeæ	3
Fumariaceæ	1	Umbelliferæ	21	Polygoneæ	12
Cruciferae	17	Caprifoliaceæ	6	Euphorbiaceæ ...	4
Violarieæ	4	Rubiaceæ	9	Urticeæ	3
Polygaleæ	1	Dipsaceæ	4	Amentaceæ.....	18
Caryophylleæ.....	17	Valerianææ	4	Alismaceæ	3
Lineæ.....	1	Compositæ	44	Potameæ	5
Malvaceæ	2	Campanulaceæ ...	3	Orchideæ	7
Tiliaceæ	1	Ericinæ.....	1	Irideæ	1
Hypericineæ	3	Jasmineæ	2	Asparageæ	1
Acerinæ.....	2	Gentianææ	2	Liliaceæ	2
Geraniaceæ	4	Convolvulaceæ ...	2	Junceæ	10
Oxalideæ	1	Boraginææ	5	Aroideæ	1
Leguminosæ	23	Solaneæ	2	Typhaceæ	4
Rosaceæ	26	Antirrhineæ	4	Cyperaceæ	12
Onagrariæ.....	5	Rhinanthaceæ ...	6	Gramineæ	38
Halorageæ	2	Veroniceæ	8	Lemnaceæ	1
Paronychieæ	1	Labiataæ	21	Equisetaceæ	5
Crassulaceæ	2	Primulaceæ	5	Filices.....	6
	130		294	Total.....	423

I would just call attention to the small number of ferns in this district, the proportion they bear to the flowering plants being as 1 to 70½, the smallest with which I am acquainted. W. L. NOTCUTT.

Fareham, December 7, 1842.

ART. CXXIV. — *County Lists of the British Ferns and their Allies.*
Compiled by EDWARD NEWMAN.

(Continued from p. 482).

STAFFORDSHIRE.

Lomaria Spicant. Harbourne, *H. C. Watson*; woods and heaths, Madeley, *G. Pinder*; in one or two rough places in Needwood forest, *W. L. Beynon*.

Pteris Aquilina. Woods and heaths, Madely, *G. Pinder*; on spots not under cultivation, chiefly on the higher ground, *W. L. Beynon*.

Polypodium vulgare. Harbourne, *H. C. Watson*; woods and heaths, Madeley, *G. Pinder*; occasionally met with, but not in so great plenty as in the adjoining counties of Warwick and Worcester, *W. L. Beynon*.

Polypodium Phegopteris. Ridge hill and Madeley manor, *G. Pinder*.

Polypodium Dryopteris. Trentham park, *G. Pinder*; it occurs in the grounds of the Rev. Thomas Gisborne, Yoxall-lodge, where it may possibly have been introduced, as that gentleman in his youth was a collector of plants, *W. L. Beynon*; in abundance on the Staffordshire side of Dove Dale, on a rock called Dove Dale Church, *Miss Beever*.

Cystopteris fragilis. Butterson park, *G. Pinder*.

Polystichum aculeatum. Sprink wood, Madeley, *G. Pinder*; on high marly banks agreeing well with Withering's description, *W. L. Beynon*.

Polystichum lobatum. Heyley castle, *G. Pinder*.

Polystichum angulare. Heyley castle, *G. Pinder*.

Lastræa Oreopteris. Woods and heaths generally, *G. Pinder*.

Lastræa Filix-mas. Harbourne, *H. C. Watson*; woods and heaths generally. *G. Pinder*; in every hedge, *W. L. Beynon*.

Lastræa dilatata. Harbourne, *H. C. Watson*; woods and heaths generally, *G. Pinder*; in deep shade, *W. L. Beynon*.

Lastræa spinulosa. Madeley bog and elsewhere, *G. Pinder*.

Athyrium Filix-femina. Harbourne, *H. C. Watson*; Old Manor lane and elsewhere, *G. Pinder*; not unfrequent in moist shady ditches, *W. L. Beynon*.

Athyrium irriguum. Trentham park, *G. Pinder*.

Asplenium Adiantum-nigrum. Bar hill and Heyley castle, *G. Pinder*; on one or two hedge-banks, *W. L. Beynon*.

Asplenium Trichomanes. Heyley castle, *G. Pinder*; on old walls at Litchfield, *W. L. Beynon*.

Asplenium Ruta-muraria. Madeley village, *G. Pinder*; on old walls at Litchfield, *W. L. Beynon*.

Scolopendrium vulgare. Heyley castle and Sprink wood, *G. Pinder*; abundant in a deep dingle at Tatenhill, *W. L. Beynon*.

Osmunda regalis. Balterley, *G. Pinder*.

Botrychium Lunaria. Whitmore and Maer heaths, *G. Pinder*.

Ophioglossum vulgatum. Meadows at Madeley, *G. Pinder*; in moist meadows among grass, with such plants as *Orchis latifolia* and *Valeriana dioica*, *W. L. Beynon*.

Lycopodium clavatum. Swinnerton and Maer heaths, *G. Pinder*; plentiful on dry ground, Barr common, *D. Cameron*, *G. Luxford*; Perry common (Mr. Ick), *W. G. Perry*.

Lycopodium Selago. Swinnerton and Maer heaths, *G. Pinder*; in June, 1836, Mr. Cameron picked up a single specimen, dead and withered, on nearly the highest part of Perry Bar common, no other could then be found, *G. Luxford*.

Equisetum limosum. Ditches about Trent, *W. L. Beynon*.

Equisetum palustre. Betley mere and elsewhere, *G. Pinder*; ditches, common, *W. L. Beynon*.

Equisetum arvense. Common, *G. Pinder*; borders of fields, *W. L. Beynon*.

Equisetum sylvaticum. Walton's wood and elsewhere, *G. Pinder*.

Equisetum fluviatile. Grafton's wood; Madeley, *G. Pinder*; moist coppices, *W. L. Beynon*.

WARWICKSHIRE.

Lomaria Spicant. Pretty generally distributed, *W. Southall, jun.*; abundant in many places, *D. Cameron, G. Luxford*; common in situations suitable to its growth, *W. T. Bree*; heathy places on Honiley common (*W. W. Baynes*); Haseley common, *W. G. Perry*; Coleshill heath, near the bog; very luxuriant in a lane leading down to Bannerley pool, *J. J. Murcott*.

Pteris Aquilina. Very common, *W. Southall jun., D. Cameron, W. T. Bree, W. G. Perry, J. J. Murcott*.

Polypodium vulgare. *W. Southall, jun.*; abundant both on the ground and on trunks of trees, *D. Cameron, G. Luxford*; very common, *W. T. Bree, W. G. Perry*.
Var. serratum: a very marked variety, much more nearly approaching to *P. cambri- cum* than the Irish variety, was found in a lane near Moseley, where it was pretty abundant, and though I have well hunted for another habitat I have not found one, *W. Southall, jun.* *Var. β.* roadside just beyond the cross at Hampton-on-the-hill, near Norton Lindsey, *W. G. Perry*.

Cystopteris fragilis. Compton Verney, near Stratford-on-Avon (*G. Cook*), *D. Cameron*.

Polystichum aculeatum. *W. Southall, jun., W. T. Bree*.

Polystichum angulare. *W. Southall, jun.*; Elmdon and near Castle-bromwich, *D. Cameron*; rare near Warwick, *W. G. Perry*; Radford; ditch at the top of Emscote hill, opposite the turn to Milverton, *J. S. Baly*.

Polystichum lobatum. *W. Southall, jun.*; Elmdon and near Castle-bromwich, *D. Cameron*; common, *W. T. Bree*; a bank at Saltley; at Yardley; and *var. ramosum*, *W. G. Perry*; thicket between Hunningham and Offchurch; plentiful on the road from Warwick to Henley, *J. J. Murcott*; Allesley, *J. S. Baly*; near Maxtoke, *G. Luxford*.

Lastræa Oreopteris. Coleshill heath, plentiful; Corley, *W. T. Bree*; Haseley common, *W. G. Perry*.

† *Lastræa Thelypteris.* Plentiful in a boggy pit in this parish [Allesley] some years ago, but the pit is drained, and the fern entirely eradicated. I never met with it elsewhere in the county. See 'Mag. Nat. Hist.' iii. 166, and v. 199, for further particulars, *W. T. Bree*.

Lastræa Filix-mas. *W. Southall, jun.*; abundant, *D. Cameron, W. T. Bree, W. G. Perry, J. J. Murcott, G. Luxford*.

Lastræa dilatata. *W. Southall, jun.*; abundant in marshy places, *D. Cameron*; not uncommon, *W. T. Bree, G. Luxford*; Coughton lane and Spennall, (*Purton*); Oakley wood; on rocks below Milverton by the side of the Avon, (*W. W. Baynes*); on a steep bank by the side of the horse-pond at Mr. Cook's farm-house, Woodloes, near Warwick, *W. G. Perry*; Foleshill, *J. S. Baly*.

Lastræa spinulosa. Sparingly in marshy ground near Smethwick, and lanes near Harbourne, *D. Cameron*; the small variety of *dilatata*, the *spinulosa* of Dickson (not the *var. recurvum*), grows in woods at Allesley and on Coleshill heath, *W. T. Bree*; Chesterton wood, in a cleared part; a shady bank, Garrison-lane near Birmingham, *W. G. Perry*; Waverley wood near Weston; Coleshill heath; Frogmoor coppice near Temple Balsall, *J. J. Murcott*; Allesley, *J. S. Baly*.

Athyrium Filix-femina. *W. Southall, jun.*; common in swampy places: the red-stemmed variety is abundant in a lane near Sutton park, *D. Cameron*; not uncommon

in moist places, *W. T. Bree*, *G. Luxford*; between Leamington and Kenilworth, (*W. W. Baynes*); on the porch of the church at Stratford-on-Avon, *W. G. Perry*; a single plant at Waverley wood near Weston; Bannerley common and wood, also in the lane leading down to Bannerley pool; moist bank near to Stonebridge, on the Kenilworth road, *J. J. Murcott*; Allesley, *J. S. Baly*.

Athyrium irriguum. This seemingly starved variety of *Filix-femina* is to be found in abundance in a lane near Harbourne, growing round a small spring, which seems as if it affected the plant by some peculiarity in the water, for at the distance of ten or twelve feet it gradually merges into the more usual type of *Filix-femina*. Specimens of this variety were planted in the Birmingham Botanic Garden, where for two or three years they remained pretty distinct, but afterwards the distinction grew more faint, and the whole plant became more luxuriant: *D. Cameron*.

Asplenium Adiantum-nigrum. Sparingly distributed, *W. Southall, jun.*; rare; near Solly-oak, and by the side of the Warwick road near Moseley common. *D. Cameron*; partially distributed; common in the parish of Corley; Meriden; Balsall; Allesley; *W. T. Bree*: on a high rocky bank near the river Avon below Milverton, (*W. W. Baynes*); road-side between Hampton-on-the-hill and Norton-Lindsey; Fen-end, Temple Balsall, *W. G. Perry*; on a bank a mile and a half from Henley, on the Warwick road; also a few fronds on the church at Henley, *J. J. Murcott*; a single plant on the church-yard wall at Lillington; Norton hill; Maxtoke priory, *J. S. Baly*.

Asplenium Ruta-muraria. Sparingly distributed, *W. Southall, jun.*; Aston-park wall, *D. Cameron*; Allesley; Berkenhill church; Maxtoke castle; Stonleigh, *W. T. Bree*; on an old bridge at Stonleigh; Southam church, (*W. W. Baynes*); Aston-park wall, on the side next the lane to Witton, (*Mr. Ick*); St. Mary's church-yard wall and a garden-wall in Priory-lane, Warwick, *W. G. Perry*; Tachebrooke church sparingly, and a single tuft on a stone bridge in Stonleigh deer-park, *J. J. Murcott*: vicarage and priory walls, Warwick, abundant and luxuriant; bridge between Leamington and Stonleigh; Coventry town wall, *J. S. Baly*.

Asplenium Trichomanes. Elmdon hall near Hockley, *W. Southall, jun.*; very partial, Allesley; Stonleigh, *W. T. Bree*; on a bridge near Stonleigh abbey (*W. W. Baynes*); Church-porch, Stratford-on-Avon; Coughton church, *W. G. Perry*; plentiful on a bridge in Stonleigh deer-park, *J. J. Murcott*.

Scolopendrium vulgare. Kenilworth; Knowle near Moseley, *W. Southall, jun.*; damp shady places near Elmdon, *D. Cameron*; common; frond cleft at the end and partially branched, *W. T. Bree*; rather common; boggy ground near Solihull, (*Mr. Ick*); var. fronde apice lobatâ; var. fronde profundè bipartito, laciniis incurvis, *W. G. Perry*; plentiful at Halton rock near Stratford; Kenilworth, near the ruins of the castle; bank of a pool at the Woodloes; roadside between Budbrook and Hampton, *J. J. Murcott*; luxuriant at Tachebrook; forked variety at Kenilworth castle, *J. S. Baly*.

Ceterach officinarum. On a brick wall at the back of the mansion house at Tachebrook, *W. G. Perry*; Mr. Waller's garden-wall at Tachebrook, *J. J. Murcott*.

Osmunda regalis. Found formerly at Coleshill heath and other places, but I cannot find it now; Sutton park, as I am informed, but very sparingly, *W. T. Bree*.

Botrychium Lunaria. *W. G. Perry*; on heathy ground near the upper part of Coleshill bog, on the Stonebridge side, *J. J. Murcott*.

Ophioglossum vulgatum. Near Bilsley common, *W. Southall, jun.*; abundant at Elmdon, *D. Cameron*; abundant; Maxtoke and Allesley, *W. T. Bree*; in fields near

Emscote cotton-mills (W. W. Baynes); in a coppice above half a mile beyond Saltisford common; in two fields on the left of the old park lane called Commander's fields, *W. G. Perry*; meadow at Offchurch in occupation of Mr. Coles; plantation in Warwick old park, bordering on the Woodloes; at Goodrest in Warwick old park; a single plant in Whitnash field, *J. J. Murcott*; Eastern green, *J. S. Baly*.

Lycopodium clavatum. Coleshill bog, *W. Southall, jun.*; Coleshill heath formerly, *W. T. Bree*.

Lycopodium inundatum. Coleshill heath formerly, *W. T. Bree*; near the upper end of Coleshill pool in 1842, *J. J. Murcott*.

Lycopodium Selago. Coleshill heath formerly, *W. T. Bree*; see Phytol. 61 for the Rev. Mr. Bree's observations on the Lycopodia of Coleshill, *E. Newman*.

Pilularia globulifera. Coleshill pool, *W. Southall, jun.*; abundant in Coleshill pool, both under water and on the margin, *D. Cameron, W. T. Bree, J. J. Murcott, G. Luxford*.

Equisetum palustre. Elmdon, *W. Southall, jun., D. Cameron*; (*W. T. Bree*), *H. C. Watson*; on the side of a lane east of Budbrook field, Warwick, *W. G. Perry*; meadows at the Woodloes and Bubbenhall, *J. J. Murcott*; Stoke, *J. S. Baly*.

Equisetum limosum. Avern's mill-pool and other pools, *W. Southall, jun.*; Coleshill pool; Elmdon; mill-pool, Bristol-road, *D. Cameron, G. Luxford*; in the latter locality I have found a variety similar to the var. *polystachion* of *E. palustre*, *G. Luxford*; (*W. T. Bree*), *H. C. Watson*; river Avon; St. Nicholas' meadow, Warwick; Chesterton mill-pool, *W. G. Perry*; in a ditch near Oldham's mill, Leamington, (*W. W. Baynes*), *W. G. Perry, J. S. Baly*; Coleshill and Bannerley pools; Haseley mill-dam; several pits in Warwick old park; river Avon near Warwick, *J. J. Murcott*.

Equisetum sylvaticum. Boundary of Birmingham Botanic Garden, *W. Southall, jun., D. Cameron*.

Equisetum arvense. *W. Southall, jun.*; common, *D. Cameron*, (*W. T. Bree*), *H. C. Watson, W. G. Perry, J. J. Murcott, G. Luxford*.

Equisetum fluviatile. *W. G. Perry*.

See also Mr. Perry's 'Plantæ Varvicenses Selectæ,' as further authority on Warwickshire localities.

WORCESTERSHIRE.

Lomaria Spicant. Abundant in damp woods and open wild heathy places; Bromsgrove Licky; Malvern hills; Shrawley wood; Wyre Forest, *E. Lees*; Hartlebury common, *R. J. N. Streeten*; Bromsgrove Lickey; Malvern hills and other places, *T. Westcombe*; Moseley common, *G. Luxford, W. G. Perry*.

Pteris Aquilina. Very common; dwarf on the Malvern hills, but in sheltered woods I have seen it full six feet high, *E. Lees*; Kempsey, in hedges; Malvern hills, *R. J. N. Streeten*; common, *T. Westcombe*.

Allosorus crispus. On the Herefordshire beacon, Malvern hills, but in one place only, so far as I have observed, and this is on the eastern or Worcestershire side of the beacon; here I have observed it for some years, but it grows very sparingly, *E. Lees*.

Polypodium vulgare. General; the variety with serrated lobes occurs on the side of a deep lane below Great Malvern, *E. Lees*; Brookend lane near Kempsey; rocks on the Malvern hills, *R. J. N. Streeten*; common, *T. Westcombe*.

Polypodium Dryopteris. On the Malvern hills, but only in one place, a stony ra-

vine between the north and end hills north of Great Malvern; plentiful however in that locality, *E. Lees*: North hill, Malvern, *T. Westcombe*.

Cystopteris fragilis. In fissures of the oolitic rock on the summit of Bredon hill, on the side of the precipice; near Bromsgrove Lickey, *E. Lees*.

Polystichum aculeatum, *angulare* and *lobatum*. Of these three forms I find *lobatum* at least commonly occurring, and most partial to deep rocky lanes, where it sometimes attains a length of nearly three feet; it grows peculiarly fine by the travertine deposits at Eastham near Tenbury; also on the Holly-bush hill, Malvern range, *E. Lees*; *P. aculeatum*, Brook-end lane, near Kempsey, *R. J. N. Streeten*: near Worcester, *T. Westcombe*.

Polystichum angulare. Near Clifton-on-Teme, *T. Westcombe*.

Polystichum lobatum. Hedge-row in Bromhall-lane, near Worcester, *R. J. N. Streeten*; Stagbury hill, *T. Westcombe*.

Lastrea Oreopteris. On the sides of the wet commons on the eastern side of the Malvern range; below Malvern wells, *E. Lees*; Moseley common, *W. Southall, jun.*, *D. Cameron*, *G. Luxford*; Malvern hills, *T. Westcombe*.

Lastrea Filix-mas. Everywhere, *E. Lees*: Brookend cross near Kempsey, *R. J. Streeten*: common, *T. Westcombe*.

Lastrea dilatata. Damp woods and alder-holts; very fine about Bromsgrove Lickey, *E. Lees*: Perry wood, *R. J. N. Streeten*: North hill, Malvern, very much curled and distorted; near Malvern; Blackstone rock near Bewdley, *T. Westcombe*.

Lastrea spinulosa. A variety with overlapping pinnules and of rigid habit grows on the Malvern hills, *E. Lees*; Shrawley wood, *T. Westcombe*; I used to find it in some of the bogs on Moseley common, which I believe have since been drained, *G. Luxford*.

Athyrium Filix-femina. *E. Lees*: Burcott, and in the wet lanes near Bromsgrove Lickey, very common (Purton's 'Midland Flora') *R. J. Streeten*: on the Malvern hills, with the broad and narrow frond, *T. Westcombe*.

Athyrium irriguum. *E. Lees*.

Asplenium Adiantum-nigrum. With variegated fronds about Great Malvern, Little Malvern, and many other spots, *E. Lees*: Brook-end lane, Kempsey, *R. J. N. Streeten*: Hanbury church, and near Worcester, *T. Westcombe*.

Asplenium Ruta-muraria. *E. Lees*: old brick wall near the Cathedral, Worcester, *R. J. N. Streeten*: Southstone rock; Stanford bridge, *T. Westcombe*.

Asplenium Trichomanes. *E. Lees*: rocks on the north hill, Malvern, *R. J. N. Streeten*: Blackstone rock; Ham bridge; Malvern hills, *T. Westcombe*.

Asplenium viride. Ham bridge, near Clifton-on-Teme, *E. Lees*: the reader is referred to further observations on this habitat in a preceding page (Phytol. 46); Mr. Lees obligingly sent me the specimen in question, and I beg to add my testimony to the correctness of the name, *E. Newman*: Ham bridge, very sparingly, *T. Westcombe*.

Scolopendrium vulgare. Monstrous specimens with multilobed fronds above two feet in length grow on the conglomeratic Rosebury rock, near Knightsford bridge, *E. Lees*: Draycot near Kempsey, *R. J. N. Streeten*: near Clifton-on-Teme, *T. Westcombe*.

Ceterach officinarum. Very sparingly on walls at Great Malvern, but not on the rocks of the hills, and I should say this fern is not at home in Worcestershire, *E. Lees*: Badsey near Evesham, *T. Westcombe*.

Osmunda regalis. On Moseley-wake green, near Birmingham, at the northern extremity of the county; Dr. Withering records the curious appearance and disap-

pearance of this noble fern at the above locality; it might therefore be presumed to be lost there, but a very few years since I was shown some ferns sent from this very spot to Miss Spriggs of Worcester, among which was a specimen of the *Osmunda*: I do not know of its growing in any other part of Worcestershire, *E. Lees*; Moseley common, *W. Southall, jun., D. Cameron, G. Luxford*, (Mr. Ick) *W. G. Perry*.

Botrychium Lunaria. Bredon hill (Dr. Nash); Abberley hill, (Mrs. Phipps Onslow, from whom I have received a specimen); on coal-pit banks near Stourbridge, (Mr. Waldron Hill in *Withering*, 2nd edition, edited by Dr. Stokes), *E. Lees*.

Ophioglossum vulgatum. Local, though plentiful where it does occur; Grimley meadows, (A. Edmonds); near Malvern, (E. Newman); Longdon marshes, *E. Lees*: near Worcester, *T. Westcombe*.

Lycopodium clavatum. On a sandstone cliff by the Severn, at Winterdyne near Bewdley, (T. Robinson, from whom I have a specimen), *E. Lees*: bog on Hartlebury common, *R. J. N. Streeten*: Moseley common, *W. Southall, jun.*

Lycopodium inundatum. On a boggy part of Hartlebury common, near its termination, about a mile from Stourport, *E. Lees*; on Hartlebury common, *R. J. N. Streeten, T. Westcombe*.

Lycopodium Selago. Moseley common, *W. Southall, jun., D. Cameron, G. Luxford*, (Mr. Ick) *W. G. Perry*.

Equisetum hyemale. Moseley bog (Mr. Ick), *W. G. Perry*.

Equisetum palustre. In bogs on Hartlebury common near Stourport; by the side of the river Avon near Pershore, *E. Lees*: Fakenham bog (Purton's 'Midland Flora'); banks of the Teme near Powick, *R. J. N. Streeten*: near Worcester, *T. Westcombe*.

Equisetum limosum. In pools and marshes generally all over the county; near Bewdley in the north, and most abundant near Chawley in the south, *E. Lees*: Severn meadows; Kempsey, *R. J. N. Streeten*: near Worcester, *T. Westcombe*; Moseley, *D. Cameron, G. Luxford*.

Equisetum sylvaticum. In a wood in the vicinity of the Malvern hills, but very rare, and I only met with one specimen, *E. Lees*: near Clifton-on-Teme, *T. Westcombe*.

Equisetum arvense. Excessively common, *E. Lees*: Severn meadows; Kempsey; banks of the Worcester and Birmingham canal, *R. J. N. Streeten*: common, *T. Westcombe*.

Equisetum fluviatile. Plentiful in boggy woods near Worcester; Great and Little Malvern; indeed generally, *E. Lees*: near Worcester, *T. Westcombe*.

It is intended to give the lists for Gloucester, Wilts, Somerset, Devon and Cornwall in the April *Phytologist*; further information respecting these counties is particularly solicited. In records of localities near Bristol, I shall feel much obliged by my correspondents taking great care as to the county. Is the locality for *Asplenium lanceolatum* in Gloucestershire or Somersetshire, or both?

EDWARD NEWMAN.

(To be continued).

ART. CXXIV. — *Notice of the 'Proceedings of the Berwickshire Naturalists' Club, for 1842.'**

THE perusal of this delightful summary of the proceedings of this little band of naturalists during the late glorious summer, is enough to make one "babble o' green fields" even amidst the snow-covered houses and streets of London on this present 18th of February, 1843. There is that sparkling freshness in its details, slight though they be, which nothing but an intimate acquaintance with the manifold beauties of Nature can have imparted to them. But before we enter upon the pleasing duty of giving our readers a brief analysis of the botanical contents of this brochure, a few words on the nature and objects of the club may not be unacceptable.

From a notice in Loudon's 'Magazine of Natural History' we learn that "The Berwickshire Naturalists' Club was instituted in September, 1831, by some gentlemen who interested themselves in Natural History, and were anxious to do their best to aid one another in their pursuits, and to diffuse a taste for them among others. The club meets four times in the year, and the place of its meeting is changed every time, to afford the members an opportunity of examining in succession every part of the neighbourhood. The members meet early in the morning; they spend the forenoon in excursions, and they again assemble at dinner, after which any papers that may be laid before them are read and discussed freely."—vi. 11.

The first president was the eminent naturalist Dr. Johnston, author of the 'Flora of Berwick,' who has taken the warmest interest in the welfare of the club from its first establishment. The members held their first anniversary meeting at Coldstream, on the 19th of September, 1831. The address now before us was read at Lowick, on the 28th of September, 1843, at the eleventh annual meeting; and exhibits "the result of the labours, or rather the harvest reaped, not by bodily fatigue, but yielded to the agreeable recreation and innocent pastime of men happy to escape from the monotonous toil of their necessary occupations, to revel in all the beauty of Nature's loveliest scenes, and the thousand charms of her everchanging aspects, and to have their feelings elevated, and their minds improved, by the calm contemplation of the wonderful works of God."—*Address*, p. 1.

The anniversary meeting for 1841 was held at Kelso; the details

* We have ventured to give a title to this interesting publication: would it not be well to print it on future wrappers?

were furnished by Dr. F. Douglas, who, after describing the ramble on the banks of Tweed, states that —

“During the walk, nothing new was observed. Several plants, however, were noticed which are of rare occurrence within the limits of the club, such as *Viola hirta*, *Thalictrum majus*, *Clinopodium vulgare*, *Epipactis latifolia*, *Listera cordata*; and Dr. F. Douglas pointed out the habitat of a beautiful coral-like fungus — *Clavaria rosea* — which has not been discovered in any other locality in Great Britain. Some small specimens were gathered, but they were not in perfection, and their beauty was nearly gone.”—3.

The first meeting for the year 1842 was held at Coldstream, on the 4th morning of the “merrie month of May;” and a right gladsome May-morning it must have been, as the following extract, redolent of the country, will amply testify.

“The rest of the members took a delightful walk down the banks of the Tweed by Lennel to Milnegraden, where the lovely scenery, rendered doubly alluring by the now bursting foliage of the woods spangled with heaven’s own diamonds, and offering to the eye all the varied tints of ‘many greens,’ and the promise of future luxuriance, amply repaid all who enjoyed this walk, for the disappointment attending their search for a piece of water which was expected to afford a rich harvest of aquatic plants and insects in its ample bosom, to ‘the careful and scientific explorers of its hidden treasures;’ but which the fairies or good people had either spirited away or rendered invisible to the eyes of the expectant naturalists. Be this as it may, no lake could be found, but many other very interesting objects were seen and duly appreciated. The humidity of the morning had tempted from their lurking-places several varieties of snail, and a few were gathered. The hawthorn, with its beautiful white blossoms and rich scent perfuming the air, was gathered in full blow in several situations — a proof of the forwardness of the season. The sand-martin was seen in great plenty, skimming over the waters, and excavating its simple habitation in the banks which overhang the Tweed; and the varied sweetness of the thousand warblers trilling their songs of love, added a charm to the morning’s ramble, which the denizens of our crowded and bustling towns can but rarely taste; and if this club had no other or higher object than occasionally to give such a delightful change and peaceful recreation to those whose occupation confines them to the desk, or the close and uninteresting monotony of a town life, that object alone would render it a blessing to the neighbourhood.”—p. 4.

The minutes of the next meeting, held at Gordon on the 15th of June, furnish a more purely botanical extract, which to us is doubly interesting, inasmuch as it relates principally to the charming *Linnæa borealis*,—that “little northern plant, long overlooked, depressed, abject, flowering early,” the very type of the early fortunes of him whose name it will transmit to future ages,—which, gracefully encircling the features of our own illustrious Ray, monthly greets the readers of ‘The Phytologist.’

“The chief object of the club’s meeting at Gordon was to gather *Linnæa borealis*

in the fir-woods of Lightfield, upon the Mellerstain estate; and thither, by a circuitous route over moss and muir, the eager party bent their steps. The first object which attracted special attention was an ancient and ruinous tower, situated to the west of the village, and formerly occupied by the powerful family of Setons, who were allied to the noble house of Gordon, formerly the proprietors of that district of country. Near the old ruin *Chelidonium majus* was found, furnishing another illustration to the opinion that this plant was introduced into horticulture at an early era. In the peaty muir on the farm of Greenknow, were gathered *Stellaria glauca* and *Myosotis palustris*, while in the nearly stagnant waters of the Eden, was observed another plant of rare occurrence in Berwickshire, viz., *Sparganium natans*. After leaving the moss, every fir-wood and thicket for miles around were penetrated and carefully searched for the humble little flower bearing the name of the immortal Swede. The search was, alas in vain; and after continuing it for fully three hours, the spirits of the party flagged, and they returned disappointed to the inn, where a good dinner and excellent liquors soon dispelled any portion of vexation which might still be felt at the want of success attending the expedition. One of the members of the club, however, nothing daunted by a single failure, and anticipating better fortune in a second attempt, did not allow many days to elapse until he was again in the woods, in the hope of securing the prized *Linnaea*, and most fully and amply was he rewarded by beholding a large space of ground covered with the delicate shining leaves of the trailing little plant, with here and there a short flower-stalk ascending, and bearing a pair of beautiful pinkish bell-shaped flowers, bending gracefully downwards: innumerable specimens of the finest description were obtained.

“It seemed remarkable that on the first search for it, all the members had passed within five yards of the spot where the *Linnaea* grew. *Listera cordata*, *Trollius europæus*, *Pyrola minor*, were found in the woods during the course of the forenoon’s walk, and a new fungus, *Æcidium Pini*, was added to the cryptogamic Flora of the county, the bark of the fir-tree on which it grew being totally destroyed by its ravages.”—p. 5.

At this meeting was read a paper by Mr. Hardy, entitled ‘Buttercups and Daisies,’ in which the question of the etymology of the terms goulans, gowans, gollands &c. is fully discussed, and the various plants to which these names have been applied, are pointed out. The author observes that these terms, “as applied to plants, are obviously related, and appear to derive their origin from the Anglo-Saxon *gold*, or, if we wish to consult a more remote parentage, from the Suio-Gothic *gul*, *gol*, yellow.” Several dainty quotations from the old herbalists are scattered through the paper, and show that various yellow flowers, such as different species of *Ranunculus*, *Caltha palustris*, *Trollius europæus* and the corn-marygold, were all known as yellow gowans; while the white division includes the daisy—the gowan *par excellence*, which “stands at the head of its class, without a peer, the type, as it were, in which all the superior properties of the other species are blended.”

Then we have “the horse-gowan, the Berwickshire name for *Pyrethrum inodorum*, *Chrysanthemum Leucanthemum* and *Anthemis ar-*

vensis." But we must take leave of this subject, which we do most reluctantly, consoling ourselves as best we may with the following extract from Turner's Herbal, being a description of his "Lukken Gollande," which is believed to be no other than our *Caltha palustris*, though from Hodgson's 'History of Northumberland' it appears that the names "locken-gowen" and "goudie-locks" are equally applied to *Trollius europæus*.

"Thys herbe useth to growe comonly about water sydes, and in watery meadowes, the proporeion of the leffe is much like unto a water-rose, otherwyse called nunefar, but the lefe is sharper and many partes lesse, and there grow many leves on one stalke, and in the toppe of the stalke is a yelow flowre like unto the kyngcuppe called ranunculus; but the leaves of the floures turne inwarde agayne, in the manner of a knoppe or lyttell belle.' — A new Herbal, &c. &c., by Wylliam Turner, Physicion unto the Duke of Somersettes Grace. Lond. 1551. Fol. k. v."

In August the club met at Abbey St Bathans, being led thither "by its retired position and celebrity for natural beauty." "In such a locality," it is remarked, "the club finds the material for forming a correct idea of the nature, extent, and composition of the ancient forests in which their forefathers may, perchance, have hunted the deer, with hound and horn, in the gallant company of a Douglas or a Percy." The following is a fancy sketch, or rather a restoration, of an ancient border forest scene, drawn from materials still existing at Abbey St. Bathans.

"In the many ravines which descended from the moor above, and in whose bottoms a runlet had cut its way amid shelving rocks, we found many springy spots occupied principally with some shrubby willows (*Salix aurita* and *cinerea*), intermingled with arching briars and wild roses. In others the alder grew predominant, while rushes and meadow-sweet and marsh thistles filled up the under ground, leaving often a middle space carpeted with mosses of yellow-green, and too moist for the growth of other plants than the willow-herbs, the forget-me-not, the ranunculus, and other semi-aquatic herblets. But the drier ground was mainly occupied with the birch, rising up from amid a bed of tall heather or of blaberries; while a tree of oak, of the mountain ash, and of the tree willow (*Salix caprea*), grew up among the birches, marked, each of them, by its peculiar shade of green. Where, again, the streamlet had cut its channel deeper, and at a lower level, the vegetation became more free and various; the alder was more common and luxuriant; the rose and briar arched their bows with greater freedom; the rowan-tree assumed a taller habit, and by its side the hagberry grew, as if conscious Nature had pleasure in the augmented beauty which each derived from the contrast between their intermingled foliage, flowers and fruit. Here all the under-ground was occupied by luxuriant ferns, bending in graceful plumes over the shelving edges of the banks, with tall nodding rushes and grasses, wild geraniums, hypericums and willow-herbs, and various umbelliferous and compound syngenesious plants. Every spot is a picture, and every one so fertile in flowers, that the botanist may cull there alone a richly varied herbarium, from the green moss, through whose dense

mass the spring filters its waters, to the hazel and the oak that shelter the pool beneath their shade from the too hot influence of the sun.

“How different again is the wood that hangs on the sides of the hills rising from the valley on each side of the principal stream or river! It consists principally of oak, of moderate size at the base of the hill, gradually diminishing in stature as we ascend, until we find it at the summit nearly level with the surface of the ground, spreading in low, circular, leafy bushes. This troop of oaks is intermingled with a considerable quantity of birch, as various as the oak itself in size and appearance, while an ash tree rises tall above them both at distant intervals. The “bonnie broom” is frequent and tall on the lower line of this wood, while the whin occupies the line above with a denser growth than usual. The intermediate ground under and amidst the trees is full sometimes of a coarser herbage, rich in fungous growths, and where lichens make the trunks all leprous; sometimes moss predominates, and this is the habitat too for *Melampyrum sylvaticum*; in other places are long streams of stones and gravel, covered partially with briars, trailing roses, and with green patches of wild sage (*Teucrium Scorodonia*), or of the herb Mercury (*Mercurialis perennis*).

“Such fancy paints our ancient border forests to have been, and probably there is much of reality and truth in the picture. A wide mountainous and barren tract, intersected by a principal devious stream, having, on each side of it, an alluvial plain of some breadth that afforded good and abundant pasture for the horses, herds and flocks of the rude inhabitants. On each side there run up ravines of greater or lesser depths, every one with a burn or rivulet in its bottom; some rocky and clean — others with plashy places, while the hills are occupied with woods such as we have attempted to describe, and the plains above are brown barren moors, varied with peat-hags and covers of whins and of broom, as the depth of the soil afforded a locality for their growth. Through these forests herds of red and fallow deer were wont to roam at freedom, and were the chase which our forefathers pursued with almost savage raptures—while now the ground is occupied with new and foreign plantations, with corn, with artificial pastures, and the hills are covered with flocks of sheep, obedient to the call of the shepherd, and browsing watchless, because they know no danger.”—p. 7.

Further on the writer observes it were “easy to imagine that on such a day as ours was — tempted by its sunshine and its fairness — the proud abbot of Coldingham had chosen it whereon to visit the sister abbey of St. Bathans, and was now descending, in all the state and panoply of his order, the height that overhung the hidden retreat about us!”

It is somewhat strange that in a botanical light this promising locality should possess but little interest. The only plants found worthy particular notice are said to have been *Hieracium palustre*, *H. boreale* (*Koch*), and *H. sylvaticum*; all three occurred “in tolerable abundance in the rocky bed of Monnie-nut burn, below Godscroft; and *Melampyrum sylvaticum*, which was abundant in the oak woods. — *Quercus Robur* was the oak principally observed, “but many specimens approached *Q. sessiliflora* in its peculiarities.”

The last botanical notice in the number is a short but interesting separate paper entitled —

“Notice of the Smilacina bifolia (Convallaria bifolia), a British Plant. By R. EMBLETON, Surgeon.

“For my knowledge of this interesting addition to the British Flora, I am indebted to my friend, the Rev. Osd. Head, of Howick, who discovered it growing, rather sparingly, “under the shade of a wide spreading beech,” in one of the woods at Howick. It has hitherto been found in France, Germany, and other parts of the continent; and I possess a specimen in my herbarium from Norway, collected by my friend Mr. R. B. Bowman, of Leadenhall St., London. It is a graceful and beautiful plant, and well deserves a share of the admiration which is so universally given to the other members of the natural family (the lily of the valley tribe) to which it belongs. It is easily recognised by its creeping roots, from which arises a delicate stem from five to seven inches in height, with two alternate ovate leaves, and terminated by a spike of small, delicate, white flowers. It flowers in July.

“Since its discovery in the woods of Howick, I am informed by Mr. Duncan, Earl Grey’s gardener, that it is found in the woods at Kenwood, the seat, I believe, of the Earl of Mansfield, and from which place, through the kindness of the same individual, I possess specimens, which do not show any difference from those gathered at Howick, with the exception of their being a little more succulent. It is there found in similar situations, namely, under the shade of beech and fir trees. It may, probably, hereafter be found in many other quiet, shady spots of our native woods, and will well repay the wandering botanist for his labour of love in its search.

“Embleton, Sept. 21, 1842.”

Much as we should rejoice at seeing the claims of this pretty little plant to a place among our indigenous species fully established, we must confess that at present we can only look upon it as an intruder, although one which we can hail with a hearty welcome. Loudon gives the year 1596 as the date of its introduction into Britain, so that it is perhaps only surprising that it should not have been previously met with in an apparently wild state. There are several other plants possessing an equally good title to be recognized as British, since they are at least completely naturalized, and yet botanists are not at all disposed to look upon them as true Britons: *Lilium Martagon*, *Chelidonium majus* and *Ornithogalum nutans* may be mentioned as examples. Linnæus, in his ‘*Flora Lappoñica*,’ enters fully into the consideration of the question whether this plant should or should be considered a species of *Convallaria*; and comes to the conclusion that it really belongs to that genus.

We hope at no very distant period to be able to renew our acquaintance with the ‘*Proceedings of the Berwickshire Naturalists’ Club*.’

ART. CXXVI.—*Varieties.*

259. *Remedial use of a Fern called “Dail llosg y Tân.”* The following notice relative to the remedial use of a fern in connexion with the late Lady Greenly, of Titley Court, Herefordshire, may perhaps be interesting, as proving the advantage of a *botanical* acquaintance with plants; for the worthy author of the memoir of Lady Greenly, being unable to give anything but the Welch name of the fern in question, of course it is rather uncertain what he means. I should conjecture the plant to be *Ceterach officinarum*.* Perhaps some Cambrian botanist may know more about it. The memoir I allude to appeared in ‘The Hereford Times’ of the 12th of November last, and is prefixed to a Welch *Marwnad* or death-song to her memory, composed by the Rev. J. Jones (Tegid), rector of Nevern, Pembrokeshire, and to which the prize was awarded at the ninth anniversary of the Abergavenny Cymreigyddion, Oct. 12, 1842. It is therein stated that—“She also loved flowers, but the *properties* of plants was one of her favourite studies, and a pursuit which she turned to the benefit of the poor.—She used to cultivate a variety of herbs, and administered medicine to all those who needed it in her neighbourhood. Amongst the plants for which she evinced a particular regard, was that called in Wales—‘*Dail llosg y Tân* ;’ it is a species of evergreen fern, indigenous to Gwent and Morganwg; and Lady Greenly having ascertained from her excursions among the Welch peasantry, that it was (as its name denotes) of value as a remedy for burns, she took pains to make it grow in Herefordshire, and succeeded in getting it to flourish round her favourite well at Titley.”—*E. Lees; Church Hill Cottage, Pow-ick, near Worcester, November 25, 1842.*

260. *Note on Bryum Tozeri.* As ‘The Phytologist’ notices *Bryum Tozeri* being found in a barren state this year in Kent (Phytol. 200), perhaps it is worthy of remark that Miss A. Griffiths met with the capsules of this rare moss in tolerable abundance, near Torquay, last March.†—*Torquay, December 15, 1842.*

261. *Note on Scleranthus.* Mr. Gibson (Phytol. 366) asks if these plants have one or two seeds. If he will, next summer, examine the plants carefully, he will find that the ovary has two ovules, but that

* In Davies’s ‘Welsh Botanology’ “*Rhedyn y gogofau*,” and “*Dueg-redynen feddygawl*,” are given as the Welsh names of *Ceterach officinarum*; “*Dail llosg y Tân*,” which we do not find in Davies, is probably the local name of some common species.—*Ed.*

† In a letter from Miss A. Griffiths to E. Newman.

only one seed usually comes to perfection. He will also observe a curious change of the dissepiment into a funiculus. At first the ovary has two cells, with one ovule in each; afterwards, as one of the ovules outgrows the other, the dissepiment gradually disappears, only a sufficient portion of it remaining to act as a funiculus, springing from the bottom of the cell and suspending the seed. No doubt occasionally two seeds are perfected, which will account for the discrepancy pointed out by Mr. Gibson.—*Charles C. Babington; St. John's College, Cambridge, January 27, 1843.*

262. *Correction of an error in Mr. Edmonston's List of Edinburgh Plants.* I shall be obliged by the insertion of the following correction of an error which somehow or other crept into my MS. on Edinburgh plants, (Phytol. 407). It is "Crichton castle," not "Craigmillar," which is the reputed station for *Carex axillaris*.—*Thos. Edmonston; Baltasound, Shetland, January 28, 1843.*

263. *Note on the supposed new British Cuscuta.* Having seen a notice (Phytol. 466) of the discovery of a supposed new British *Cuscuta*, by Mr. C. C. Babington, of Cambridge, it may be interesting to the discoverer to know that while on a visit at Ramsgate in August last, I detected a *Cuscuta* in one or two places in a clover-field on the right hand side of the road leading from St. Peter's to Broadstairs, and which appeared to me at the time to be a variety of *C. Epithymum*. I am now however inclined to think, from Mr. Babington's description, that it may turn out to be the same plant as that described by him under the name of *C. Trifolii*. It was by no means abundant, and it occurred in patches. I subsequently detected it in small quantity in one or two other places in the Isle of Thanet, where it appeared to have greatly injured the crops of clover. I shall take the earliest opportunity of further investigating the subject, and communicating the result in 'The Phytologist.'—*T. B. Flower; Surrey St., February 1, 1843.*

264. *List of a few Plants observed in Lincolnshire.* Lincolnshire presents one of the most attractive and prolific fields for the botanist in the east of England. The richness and variety of the soil, added to its wide extent, combine in rendering it well worthy the attention and careful investigation of every lover of Natural History. It is under this impression that I think the following list of some of the more uncommon plants observed by me during the last few years in the neighbourhood of Gainsborough, may not prove altogether unacceptable. The district to which I have confined my researches, offers perhaps a greater variety than any other part of the county; the rich

pasture land which clothes the banks of the river Trent, and the waste uncultivated tracts in the neighbourhood of Scotter and Laughton, occupy the most prominent part of it, and cannot fail to repay the researches of all those who take any interest in the botanical productions of this locality. The following then are those which have principally come under my observation, and which I consider most worthy of notice.

Pinguicula vulgaris. Abundant on Scotton common, but I am aware of no other spot in the neighbourhood in which it occurs.

Utricularia minor. Bogs near Laughton, but not common.

Menyanthes trifoliata. Extremely plentiful on Laughton common and at Scotton.

Hottonia palustris. Occurs in a pond at Knaith, but is extremely scarce.

Lysimachia vulgaris. On the banks of the Trent, not uncommon; also in tolerable abundance at Scotter.

Anagallis tenella. Occurs sparingly on Scotton common and at Knaith.

Gentiana Pneumonanthe. In abundance on Scotton common; less frequent in Scotter wood.

Drosera rotundifolia and *longifolia*. Plentiful on Scotton common.

Narthecium ossifragum. Scotton common, and in the fens about Laughton, abndt.

Convallaria majalis. Lea wood; also at Manby.

Paris quadrifolia. In Gate Burton and Lee woods in abundance.

Butomus umbellatus. Ditches on the banks of the Trent and at Scotter.

Reseda Luteola. Exceedingly common on the banks of the Trent.

Geum rivale. Very common in Gate Burton wood.

Stratiotes aloides. Said to be found near Gainsborough, but this I am inclined to think is not now the case, having never met with it in my researches, nor have I heard of its being found by other collectors.

Galeopsis versicolor. Sparingly at Laughton, in cornfields.

Digitalis purpurea. Scarce in the neighbourhood, but occurring in small quantities in fields between Gate Burton and Knaith.

Eupatorium Cannabinum. Hedges near Susworth.

Petasites vulgaris. Banks of the Trent near Gainsborough.

Habenaria bifolia. Plentiful in Gate Burton wood.

Ophrys muscifera. One or two specimens have occurred at Manby wood, but it is decidedly uncommon.

Aceras anthropophora. Plentiful in Gate Burton wood, with *Habenaria bifolia*.

Sagittaria sagittifolia. Very common in the river Ean at Scotter.

—*T. V. Wollaston*; Cambridge, February 14, 1843.

265. *Monstrosities in the Flowers of a Fuchsia*. The first I shall notice is interesting to the morphological enquirer, and tends strongly to support the views of Professor C. Morren of Liege (Ann. and Mag. Nat. Hist. vii. 1), that the formation of anomalous flowers is caused by a descending metamorphosis, or from the centre to the circumference, and which he sought to verify by the gradual changes observable in the double variety of the common columbine, showing that

as the cells of the anthers vanished the connective expanded, until at last it became a perfect horn-shaped nectary. In the flower alluded to above, the connective of one of the stamens shot forth beyond the anthers, and by the time they had opened and discharged their pollen, it had assumed the form of a complete ovate petal, about four lines long and three broad; the part of the connective that formed the claw or stem of the petal, was about three lines long and one in breadth; the anthers were as close together, and to all appearance as full of pollen, as those on any of the other filaments, and the colour of the petaloid expansion was the same rich purple as the petals, being in the stem part, before it reached the anthers, of the scarlet hue of the filaments. We have thus a corroborative proof of the truth of the hypothesis advanced by the Professor, — a stamen not only performing its own proper functions, but further, from its luxuriance possessing the power to form, and fully develop, one of the next outer circle of floral organs, or the very reverse of the statement of Mr. Hill (Phytol. 368), that a stamen is only a modified petal.

Another flower on the same plant exhibited a redundancy in all the floral organs, with the exception of the pistil; the calyx having six segments, and there were eight petals and twelve stamens: thus departing, in its calyx and stamens, from the binary character of its family, but even in its irregularity showing the intimate connexion of the sepals and stamens.—*James Bladon; Pontypool, Feb. 6, 1843.*

266. *Remarks on the Fern-lists.* I have had much pleasure in reading the three county lists of ferns and their allies; but perhaps you will allow me, through the medium of 'The Phytologist,' to ask your Lancashire friends the two following questions: — first, whether Greenfield is situated in the county of York or Lancaster? secondly, whether Cotteril-clough is in Cheshire or Lancashire? The locality for *Hymenophyllum Wilsoni* at Rake-Hey common involves a two-fold error, since Rake-Hey common is undoubtedly in the county of York, and the plant growing there is certainly *Hymenophyllum Tunbridgensis*.—*R. Langthorn; Heptonstall near Halifax, Feb. 7, 1843.*

267. *Mr. Hewett Watson's grounds for connecting the name of "Mr. S. Gibson" with some botanical localities.* In the February No. (Phytol. 477) the name of a Mr. Gibson, but I know not whether the Mr. Gibson who writes to 'The Phytologist,' is stated to have been incorrectly connected by Mr. Francis with an alleged locality of *Polypodium calcareum* "near Lancaster." It is probable that the locality was communicated to Mr. Francis, on the authority of a specimen preserved in my herbarium with a memorandum to indicate that it was

received from Mr. R. B. Bowman, who in turn had received it from — Gibson. Unluckily, I have not preserved also the label which came to my hands along with the specimen, but there are other circumstances which will identify the donor of the specimen to Mr. Bowman. About the years 1832-4 I received numerous dried plants from the north of England, by the kindness of that accurate botanist, but several of them gathered by other persons. Among those plants were a few, mostly fragmentary and ill-dried specimens, accompanied by labels quite different from the neat labels of Mr. Bowman; and to these labels the name of "S. Gibson" was subscribed. One of them is now before me, the same that is referred to, on p. 652, in the 'Supplement to the New Botanist's Guide;' the name of the place cannot be made out on this label, which was evidently written by an uneducated person. From recollection I should say that the other labels, on which the name of "S. Gibson" was written, were similar to this one in the quality of paper and character of handwriting; and it is thus quite possible that the writer intended some other locality, which was misread by myself into "Lancaster." If the name of your correspondent, Mr. S. Gibson, had been attached to any locality "near Lancaster," for *Polypodium Dryopteris*, in Mr. Newman's list of Lancashire ferns, I should have conjectured some discrepancy of opinion with respect to the specific name,—for, in truth, this one, and two or three other specimens in my herbarium, incline towards *P. Dryopteris*; but that not being the case, we must suppose either an error as to the locality, or an error on the part of your correspondent in hastily assuming himself to be the person intended. At all events, he will know whether he formerly did send dried plants to Mr. Bowman. The name of "S. Gibson" being the authority for other localities of scarce plants, in the New Guide, it would be worth while to ascertain who the person truly is, and what reliance can be placed on his reports of localities for dubiously British plants,—for example, *Geranium nodosum*, as having been gathered by him near Halifax.—*Hewett C. Watson; Thames Ditton, February 8, 1843.*

268. *Enquiry respecting "Nymphæa alba minor."* In a copy of Blackstone's 'Specimen Botanicum,' which formerly belonged to Peter Collinson, there is the following MS. note pasted in, but not in Collinson's hand-writing.—

"I don't find the *Nymphæa alba minor* taken notice of in the Synopsis* at folio 368. This rare plant I have twice observed. The first was in the North Road, from

* Raii Synopsis, ed. 3tia, 1724.

York going over a stone bridge on the right hand in a river before one comes to Doncaster; it was then in flower, beginning of August.

“The second time I met with it was in going from Lyndhurst in the New Forrest to Brockenhurst; there is a watercourse at the entrance of the village, over which there are bridges, but it then being dry weather, there was no running stream, but the water stood in pools; in these pools I observed to grow both the small and great Water-Lilly; they were both in blossom together, so that the distinction was easily made and the difference was pretty remarkable.—August 10, 1739.”

I shall be glad to be informed, through the medium of ‘The Phytologist,’ whether this plant has since been observed in the above or any other localities, and what it is. — *W. Pamplin, jun.*; 45, *Frith St., Soho, Feb. 10, 1843.*

269. *Supposed new British Fern.* Since the publication of a note on a supposed new British *Adiantum* (Phytol. 462), I have submitted the specimen to Mr. Wilson and Mr. Babington, both of whom fully concur with me in thinking it distinct. Still, as an unintentional transposition of specimens may possibly have taken place, and as I can find no Arran specimens in London, with which to compare the specimen in question, I hesitate to publish the species as new. If this should meet the eye of any botanist who can supply me with authentic specimens from Arran, even on loan, I shall esteem it a great favour. — *Edward Newman; Hanover St., Peckham, Feb. 18, 1843.*

ART. CXXVII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

February 9, 1843.—Professor Graham in the chair. Churchill Babington, Esq., St. John’s College, Cambridge, and G. G. Gibson, Esq., Saffron Walden, Essex, were elected non-resident fellows, and Alex. Paterson Esq., a resident fellow of the Society. Various donations of plants were announced.

Professor Graham then read a highly interesting account of his botanical excursion in Róss-shire during August, 1842, with a party of friends. The party left Edinburgh on the 21st of August, and met at Dingwall;—thence they walked by Garve, Auchnalt &c. for Kinlochewe. On the low hills near Garve they found a sprinkling of alpine vegetation, and *Nymphæa alba*, beautifully in flower, in a pool near the top of one of them, at a higher elevation than had been previously observed. The season having been remarkably dry, all the lakes were far below their usual level, and in consequence such plants as *Lobelia Dortmanna*, *Subularia aquatica*, &c., were seen, wondering at each other, in flower and fruit, on dry ground. Things, however, were now changed, for the party had scarcely a dry day during the whole of their excursion, and few such as admitted of the vegetation being carefully examined. Several days were spent among the mountains about Loch Maree, which are chiefly composed of red sandstone, with quartz tops—and by no means prolific in interesting vegetation. Cor-

mus suecica, *Saussurea alpina*, *Hieracium alpinum*, *Rubus Chamæmoris*, *Arbutus alpina*, *Azalea procumbens*, *Cherleria sedoides*, *Sibbaldia procumbens* &c. were among the rarest plants observed — and, rather unusually, all the six *Lycopodia* were picked nearly in one spot. *Tofieldia palustris*, *Thalictrum alpinum* and *Malaxis paludosa* occurred at the bottom of the cliffs, and *Salix herbacea* was found sparingly on the red sandstone below the summit cliffs of Ben Tarshan. Opposite Applecross, in a bog which the tide could seldom reach, were picked specimens of *Blysmus rufus* two feet high. Here there is an extent of limestone country — easily recognised at the distance of several miles by a marked improvement in the pasturage. On it the party met with *Schœnus nigricans*, *Gentiana Amarella*, *Listera ovata*, and *Epipactis latifolia* with pale flowers, but searched in vain for *Dryas octopetala*, which occurred profusely in similar soils in Sutherland. In an old deserted garden between Sheildag and Janetown, they observed *Althæa officinalis*, *Aconitum Napellus* and other introduced plants. They also saw near Janetown, *Ulex europæus* (a rare plant in the west of Ross-shire) growing freely and producing abundance of seed; and the elder seemed to thrive peculiarly well.

Proceeding southward, the party enjoyed one fine day at Clunie, and examined with considerable attention some very promising mountains to the south-west of the inn. These are crumbling and micaceous, but want elevation to produce alpine plants, and the mildness of the western climate renders that all the more necessary. The only interesting vegetable feature was an immense profusion of *Saussurea alpina*; though in spring, before vegetation gets rank, it is not unlikely that these cliffs might be found more productive. A patch of snow observed on the south side of Maamsool, a mountain about twenty miles north of Clunie, made the party desirous of visiting it; but here again the weather baffled their intentions. The party took Ben Nevis in their route, but the same cause rendered them unable to examine, as they wished, its magnificent cliffs. They, however, picked some interesting plants, and among the rest *Carex saxatilis*, but only in one spot.

A letter to Professor Graham, from Mr. N. B. Ward, F.L.S., on the introduction of the *Musa Cavendishii* into the Navigator Islands, was read:—

“When Mr. Williams was about to leave England in 1839, for the Navigators, he was anxious to take with him some useful plants, and particularly the *Musa*. He enquired of me whether I thought that it would travel safely in one of the glazed cases, and, having received an answer in the affirmative, he applied to his Grace the Duke of Devonshire, who kindly gave him a healthy young plant. Mr. Williams left England on the 11th of April, 1839, and arrived at Upolu, one of the Navigator Islands, at the end of the following November. The *Musa* bore this long voyage well, and was transplanted into a favourable situation soon after its arrival. In May, 1840, it bore a fine cluster of fruit, exceeding 300 in number and weighing nearly a cwt. The parent plant then died, leaving behind more than thirty young ones.—These were distributed to various parts of the island, and in the following May (1841) when Mrs. Williams left the island, all of these were in a fructiferous state, and producing numerous offsets. Supposing the plants to continue to increase in the same ratio, there will be in the ensuing May (1843), more than 800,000 of them, and as the son of Mr. Williams is established as a merchant at Upolu,—is owner of two vessels constantly employed in trading between the various islands in the South Pacific,—and is moreover actuated by the same benevolent disposition which was a striking characteristic of his late father, there cannot be a doubt that in a very short time they will

be common in all the islands. To estimate the importance of the introduction of this plant, we must bear in mind the great quantity of nutritious food furnished by the Banana. Humboldt has told us that he was never wearied with astonishment at the smallness of the portion of soil which, in Mexico and the adjoining provinces, would yield sustenance to a family for a year; and that the same extent of ground which, in wheat, would maintain only two persons, would yield sustenance under the Banana to fifty, although in that favoured region the return of wheat is never less than seventy, and is sometimes as much as a hundred fold. The return on an average, in Great Britain, is not more than nine for one."

Mr. Ralfs' paper on the Diatomaceæ, No. III., was then read, containing descriptions of several genera.

On the Development of Leaves. By Dr. Dickie, Lecturer on Botany, King's College, Aberdeen. — The author concludes by stating — "that it cannot be said that the forms of leaves in flowering plants have any dependence whatever on their venation, since young leaves are lobed &c. previous to the appearance of the veins. The truth appears to be, that the quantity of cellular tissue in a leaf determines the development and positions of the veins, and not the opposite."

BOTANICAL SOCIETY OF LONDON.

December 16, 1842.—Dr. W. H. Willshire in the chair. The following donations were announced:—British plants from the Liverpool Natural-History Society, Mr. J. Tatham, Mr. W. Baxter, Mr. J. Goodlad, jun., and Mr. W. J. West; and a small collection of plants from Sierra Leone, from Mr. Adam Gerard.

A paper was read from Dr. John Lhotsky, "On the limits of Vegetation."

January 6, 1843.—J. E. Gray, Esq., F.R.S., President, in the chair. The following donations were announced:—British plants from the Royal Horticultural Society of Cornwall, Dr. Philip B. Ayres, Mr. J. Merrick, Mr. I. Brown, Mr. T. Twining, jun., Mr. W. L. Notcutt, and Mr. T. Beesley; British Fungi from Mr. H. O. Stephens. The Rev. W. H. Coleman presented a specimen of *Carex Boenhausiana*, Weihe, found by him in Herts.

Dr. John Lhotsky read a paper "On the Sugar of Eucalyptus."

January 20, 1843.—Adam Gerard Esq. in the chair. Donations to the library were announced from the Boston Natural-History Society, the Manchester Geological Society, from the President, from Mr. W. Baxter, Mr. E. Doubleday, Mr. S. P. Woodward, Mr. Van Voorst, Mr. Lovell Reeve, Professor Meneghini, and the Academy of Natural Sciences, Philadelphia.

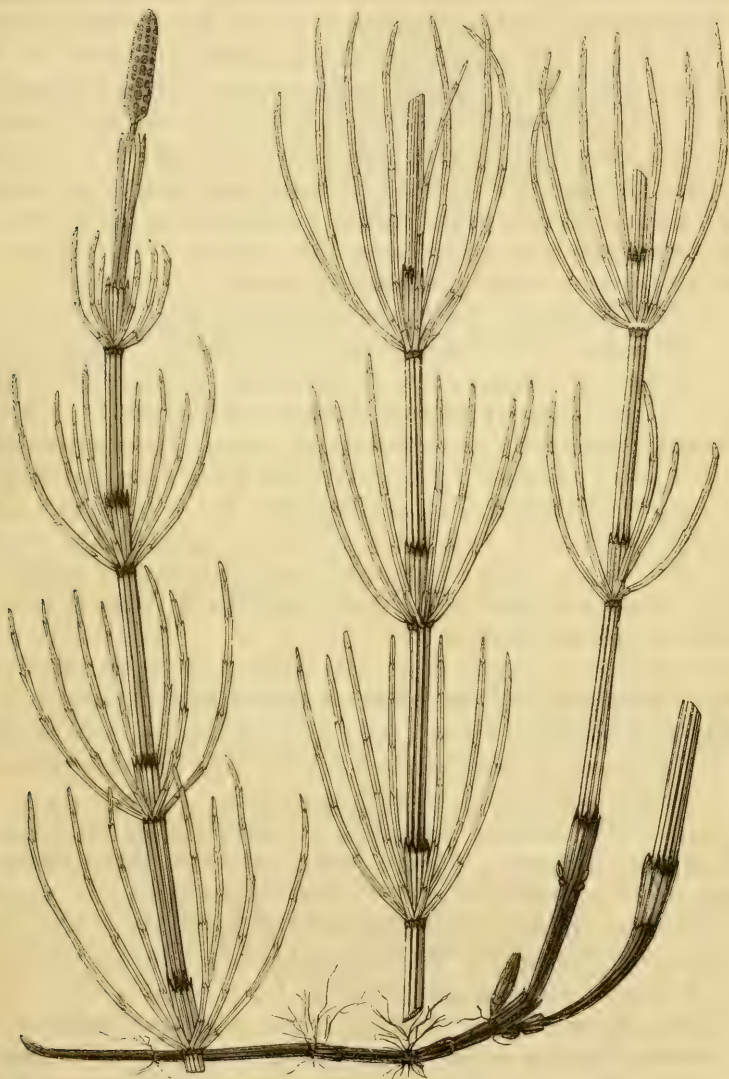
British plants had been received from Mr. James Buckman and Dr. J. F. Young; British mosses from Mr. W. Gardiner jun. Mr. Robert Embleton presented a specimen of *Majanthemum bifolium*, De C., (*Convallaria bifolia*, Linn.), found by him at Howick, in Northumberland.*

Mr. William Gardiner, jun., communicated a paper, being "A Notice of Localities for some of the rarer Alpine *Hypna*." The paper was accompanied with specimens.—G. E. D.

* See Phytol. 520.

THE PHYTOLOGIST.

ART. CXXVIII. — *A History of the British Equiseta.* By EDWARD
NEWMAN. Continued from p. 340.



MARSH HORSE-TAIL.
EQUISETUM PALUSTRE of Authors.

THIS species appears to be generally distributed: it occurs in all the county lists of ferns which I have received, and is rarely mentioned either as local or uncommon. In Ireland I found it particularly abundant, especially in the north: in the vicinity of the Giant's Causeway I observed several large patches of ground densely covered with it. I have not seen it in such profusion elsewhere.

The old figures usually quoted as representing this plant must be received with considerable doubt. Those of Gerarde* and Lobel,† evidently printed from the same block, represent a plant growing in the water, and having one erect and unbranched stem, and another branched, and somewhat resembling the present species. Ray's figure‡ represents a variety hereafter to be noticed. The modern figures of course more nearly resemble the plant.

Gerarde's description appears to comprehend more than one species. "The great thicke jointed stalk" describing *Eq. limosum* of Smith, while the roughness and hardness seem inapplicable to that species. I subjoin the passage as it stands in the herbal. "Water Horse-taile, that growes by the brinks of riuers and running streams, and often in the midst of the water, hath a very long root according to the depth of the water, grosse thicke and jointed, with some threds annexed thereto: from which riseth vp a great thicke jointed stalk, whereon grow long rough rushy leaues pyramide or steeple fashion. The whole plant is also rough hard and fit to shave and rub wooden things as the other."

It is not however only in these ante-Linnean works that the synonymy of this and the following species is involved in obscurity. Our modern authors, I regret to say, have hitherto done but little towards the elucidation of the nomenclature. In the hope of making the subject somewhat more clear, I have introduced some observations on the specimens in the Linnean herbarium. Unfortunately, the Linnean characters are frequently obscure, owing to the constant endeavour of their celebrated author to make them as concise as possible: in such case a reference to the specimen becomes indispensable. It is, I believe, generally known, that the Linnean herbarium was purchased by Sir J. E. Smith, and subsequently by the Linnean Society of London, in whose possession it now remains. The specimens are fixed on half sheets of foolscap paper; they are named by Linneus himself, in his own handwriting, and have also the comments of Sir J. E. Smith

* Ger. Em. 1113.

† Lobel, 795.

‡ Synopsis, tab. v. fig. 3.

wherever it appeared to him necessary or useful to add an explanatory note. A few labels with MS. notes are pasted in, but I am not certain of their author. The *Equiseta* are comprised in a fasciculus of nine folios: the fasciculus is endorsed thus, — “1169, *Equisetum*,” in the handwriting of Linneus.

In the same apartment are preserved the author's own copies of the first and second editions of the ‘*Species Plantarum*.’ In the first all the species possessed by the author are distinguished by a particular mark; and the second is enriched with his own unpublished notes. I will now endeavour to combine the information obtained from these several sources, only quoting the *published* characters when requisite, and adding remarks of my own on every specimen.

FOLIO 1.

Linneus.—1. *sylvaticum*.

E. N.—A single young specimen of *Eq. sylvaticum* of Smith, with a very perfect catkin.

FOLIO 2, pinned by Linneus to the preceding.

E. N.—Two mature specimens of *Eq. sylvaticum* of Smith, without fructification.

FOLIO 3.

Linneus.—2. *arvense*.

Anonymous.—1061. *Equisetum setis ramosis*. *Equisetum verticillis ad folia numerosis*. Hall. *Stirp. Helv.* 144. *Equisetum sylvaticum*, tab. p. 253.

E. N.—Two specimens: right hand, a fertile specimen of *Eq. arvense* of Smith, with perfect catkin; left hand a mature specimen of *Eq. sylvaticum* of Smith, without fructification.

FOLIO 4, pinned by Linneus to the preceding.

Linneus.—Hispania, 713. Loeft.

E. N.—Three specimens without fructification, all of them apparently starved or distorted: they probably belong to the *Eq. arvense* of Smith. The Linnean MS. is on the back of the folio.

FOLIO 5.

Linneus.—3. *palustre*.

Smith.—?

Anonymous.—1060. *Equisetum setis simplicibus*. *Equisetum minus terrestre*. I. B. M. p. 730.

E. N.—Two specimens without fructification, and in a very unsa-

tisfactory state of growth : right hand appears to me to be *Eq. arvense* of Smith ; left hand is perhaps *Eq. palustre* of Smith.

FOLIO 6.

Linneus.—4. *fluviatile*.

Linneus [Sp. Plant.*]—*Fluviatile* 4. *Equisetum caule striato frondibus subsimplicibus* ; [here follow the synonymes]. *Habitat in Europa ad ripas lacuum fluviorum.* 2l.

———. [MS. addition over the word *striato*], an *striato* ?

———. [MS. addition on the opposite page, the copy being interleaved, and in allusion to a reference to Haller]. *Hoc caules proliferos a sterilibus definitur profert.* Hall. [The passage in Haller is this —“ *Caulis floriger videtur a folioso remotus.*”†]

———. [MS. addition below the preceding]. *Forte mera varietas prioris [palustre] ex solo aquæ profundioris.*

Smith.—*limosum* ? Certè.

E. N.—Four specimens, all with catkins, and identical with *Eq. limosum* of Smith. As there is no representative of *Eq. limosum* of Linneus, and as the marked copy of the work indicates that he did not possess it, I subjoin the character.

Linneus.—[Sp. Plant.]. *Limosum*, 5. *Equisetum caule subnudo lævi*, [here follow the synonymes]. *Habitat in Europæ paludibus, turfosis, profundis.* 2l.

———. [MS. addition on the opposite page]. *Hallerus hanc facit varietatem E. palustris.*

E. N.—It is clear that Linneus trusts to Ray as the authority for this as a distinct species, since he quotes his figure,† which evidently represents the unbranched form of *Eq. limosum* of Smith. Hence it seems that *Eq. fluviatile* of Linneus is the branched, and *Eq. limosum* the unbranched form of *Eq. limosum* of Smith ; and that *Eq. fluviatile* of Smith has no representative either in the herbarium or the works of Linneus. With respect to the observation of Linneus quoted above, that Haller makes this species a variety of *Equisetum palustre*, I think the criticism is an unjust one. Haller quotes Ray's figure 3, and, as it seems to me, correctly, as a variety of *Eq. palustre* ; while Linneus quotes Ray's figure 2, which is evidently the *Eq. limosum* of Smith. A positive proof that the *fluviatile* of Linneus was not the *fluviatile* of Smith, exists in the fact that he attempted to account for its increased size and altered appearance by its growing from the bottom of deep water : this is the case with Smith's *limosum*, but never with his *flu-*

* Sp. Plantarum, 1517.

† Haller, Helv. 144.

‡ Syn. t. 5, fig. 2, a, b.

viatile, which, on the contrary, affects loose gravelly and sandy places unconnected with water.

FOLIO 7.

Linneus.—*Ædific.*: hyemale.

———. [Sp. Plant. MS. addition on the opposite page]. *Equisetum caule simplici aspero vaginis non laciniatis*. Hall. Helv. 143.—*Caulis viridis scaber, radiis* [?] *vaginæ pallidæ basi marginisque denticulis obsoletis atris gibbis*.

E. N.—A single specimen of *Eq. hyemale* of Smith. The word or abbreviation "*Ædific.*" implying its uses, is written apart from the name.

FOLIO 8.

Linneus.—*Tourelle*.

Smith.—*Asperillum*, Dick., *variegatum*, Jacq. H. B.—J. E. S.

Anonymous.—*Equisetum basiliense*, No. 1678, haller. An species distincta apud cl. linn.? In horto cultum.

E. N.—A single specimen of *Eq. variegatum* of Smith. Linneus answers the question as to its being a distinct species, by giving *basiliense* as a synonyme of *hyemale* (*Phytol.* 338). The word "*Tourelle*" written by Linneus is probably a habitat.

FOLIO 9, pinned by Linneus to the preceding.

Linneus.—*Suec*.

E. N.—A single specimen of *Equisetum variegatum* of Smith, much more slender than the preceding: the Linnean MS. evidently implies the habitat, Sweden.

I think the above notes will be sufficient to show that as regards several species of *Equisetum*, more especially the present, generally known as *palustre*, the Linnean herbarium is not a sure guide. There is, however, much collateral evidence that Linneus was not only acquainted with the *Equisetum palustre* of modern authors, but that he referred to that species when he named the plant in question; for he expressly states that his *fluviatile* (Smith's *limosum*) may be a variety of *palustre* growing in deeper water. Now as he was so well acquainted with *fluviatile* (Smith's *limosum*), and possessed such good specimens, his judgment cannot be supposed so much in fault as to have referred it to *arvense*. The error must have arisen from a want of care in the selection of specimens for his herbarium. Moreover, the name *palustre* is now too universally employed to admit of its being changed, without a better reason than a discrepancy which may

have originated in carelessness. The same is not the case with fluviatile: I am decidedly of opinion that the name in this instance must be changed; and I make the proposition previously to publishing the species, in order that I may be favoured with the opinions of those botanists who think otherwise. I propose restoring the Linnean name to the limosum of Smith, and sinking the name limosum to the rank of a variety; thus:—

Equisetum fluviatile, Linn. = *Equisetum limosum*, Smith.

“ “ *β. limosum*, with the stem quite simple, =
Equisetum limosum Linn.

The species hitherto called fluviatile is already so well provided with names that it is difficult to determine which to select. It seems to be the *Equisetum majus* of Gerarde* and Ray,† the *Eq. Telmateia* of Ehrhart‡ and *Flora Danica*,§ and the *Eq. eburneum* of Roth.||

In a plant of which the synonymy is so imperfectly known as the marsh horse-tail, it is by no means an easy task to trace the record of medical and other properties. Haller seems to have collected together a number of wise saws from a variety of sources, and gives them under his *Equisetum* No. 1677: but not only do I doubt whether the whole of them were intended for any one species, but I also doubt whether his No. 1677 is the species now under consideration. The point is not worth a very rigid scrutiny. He makes out his No. 1677 to be hurtful to oxen and cows, giving them diarrhœa and making their teeth loose, but at the same time to be harmless to horses and sheep. He also speaks of the great difficulty of extirpating it from a field where it is once naturalized: of its uses as a medicine he cannot speak with certainty.¶

The roots are slender and frequently divided; they appear to spring from the joints of the rhizoma, and are generally covered with minute

* Ger. Em. 1113. f. † Ray, Syn. 130. ‡ Ehr. Beitr. ii. 159. Crypt. 31.

§ Flora Danica, tab. 1469. || Roth, Cat. i. 129.

¶ Haller, 3. 2. 1677. Hoc equisetum minus quam 1676 tamen et ipsum pecori nocet et dentium facit in bobus et vaccis vacillationem tum diarrhœam. Cum seductus pulchritudine Trifolii Equiseto 1676 inquinati, famulus, qui boum meorum curam gerebat, semel aut iterum vaccam nuper vitulam enixam hac pestilente herba aluisset, ex diarrhœa immedicabili eadem periit. Quare magnis pecuniis nostri arcanum redimerent, quo prata infaustissima herbarum liberarent. Mihi neque aratrum, neque fimus, neque alia cura profuit. Equis non nocet, neque ovibus et rangiferis. Porci nostrates recusant, cum in Suecia non detrectant. Radicibus tamen glandium simile aliquid sæpe adhæret, quod porcos credas requirere.

Vires medicas vix satis certas autumo. Aquosa planta est, parum acris: ei adstringentes vires tribuerunt in diarrhœa, in hæmoptoe efficaces, &c. &c.

fibrillæ. The rhizoma is creeping, and extends to a great length ; it is of nearly the same diameter as the stem, very black and shining, and smooth to the touch : at the joints it is solid, but the internodes are more or less hollow.

The engraving at the head of this article represents a stem of marsh horse-tail of the normal size and proportions : in order to exhibit the whole at one view, the stem has been divided into three portions. — The stem is perfectly erect, about fifteen inches high, deeply furrowed and finely granulated : the furrows are eight in number, the granulations of the ridges between them feel rough to the edge of the nail if drawn along them. The stem is divided into eleven compartments by means of transverse septa ; the internodes are an inch and a quarter or an inch and a half in length : the sheaths occur at the septa, and correspond in number ; they considerably exceed the stem in circumference, and in consequence are loose : the ridges of the stem enter the sheaths and terminate in the teeth, which are eight in number, acute, wedge-shaped, tipped with black, and furnished with nearly transparent membranous edges. There are nine whorls of branches : these rise from the furrows of the stem, close to the base of the sheaths ; they never exceed the furrows in number, and are frequently fewer ; at the base of each is a short black sheath, and these form a series of black rings round the stem : they are divided into six or eight joints, of which the basal and apical are the shortest : they have five furrows, and the sheaths occurring at the joints are five-toothed ; the teeth are tipped with brown : the branches vary in length in the same whorl, and still more so in different whorls.

The catkin is long and rather narrow ; when mature it stands on a distinct stalk of its own length : it is terminal, and after discharging its seeds it appears to perish, the stem and branches continuing to retain their vigour. There is no apiculus, the extreme summit being composed of a scale similar to the rest : at first the scales are crowded together, forming a black mass, they afterwards separate, the peduncle supporting each becomes visible, and the catkin, increasing in length, assumes a brown colour. The catkin appears in May and June.

This species, like the preceding, is subject to extraordinary variations, the most striking of which I shall describe.

EDWARD NEWMAN.

(To be continued).

ART. CXXIX.—*Notes of a Solitary Ramble to Loch-na-gar &c., with Remarks on several species of Plants collected in the course of it, on the 14th of July, 1842.* By Mr. J. B. BRICHAN.

WEARIED with a walk of at least twenty miles, I arrived at Castleton of Braemar about 9 o'clock on the evening of Wednesday the 13th of July. For several miles, further down the Dee, I had found the pretty alpine plant, *Alchemilla alpina*, in situations where neither river nor torrent could have carried it from its native bed. In these situations, therefore, it is strictly wild, but at what height above the sea I am unable to say. This plant is found also within a few miles of Aberdeen, where it has undoubtedly been washed down and planted by the river.

At half-past 7 the next morning I left Castleton, and proceeded in the direction of Loch Callader, which lies to the south-west of the "dark Loch-na-gar," and the vicinity of which has been visited and explored by botanists times and ways innumerable. In my walk to this locality, to which one half of the road runs through Glen Callader, and through ground which is altogether *highland*, I met with no plants strictly alpine, except *Alchemilla alpina*, *Oxyria reniformis*, *Saxifraga aizoides* and *S. stellaris*. The sides of the road and ground adjacent were covered with hosts of plants, which, as they are, generally speaking, found in all situations and at all elevations, I do not consider in any sense *alpine*. *Polygonum viviparum*, for instance, I have frequently seen at almost no distance from the sea, and at hardly any height above its level. *Oxyria reniformis*, *Saxifraga aizoides*, and, if I mistake not, *Saxifraga stellaris* also, are, like *Alchemilla alpina*, found at a great distance from their natural habitats, by the side of the river already mentioned. I believe the same is the case with respect to many other alpine productions, and with respect to every river that has its source among the hills.

When I had arrived at Loch Callader, and had learned from the occupant of the solitary abode at its northern extremity, the best way to Loch-na-gar, I proceeded along the western margin of the lake, where, as the same obliging individual informed me, most *weeds* are to be found. I was first struck with the minute leaves of *Thalictrum alpinum* growing among the stones and moss close to the water. I saw them in great abundance almost to the head of the lake, but I could not detect more than half a dozen perfect plants, and these almost entirely in fruit. The beautiful *Saxifraga oppositifolia* next attracted my attention; there were a good many tufts or patches of it,

but few specimens in flower. It is said to flower in April and May, but I am quite satisfied that in this locality it was only coming into flower at the time I gathered it: and if I recollect rightly, a dried specimen which I received some years ago, was labelled as having been gathered in July. Of *Tofieldia palustris* I got just two specimens, and of *Juncus triglumis* only a few. The four plants just named I observed in no part of the ground I traversed, except along the margin of Loch Callader; but in that station I gathered also *Saxifraga stellaris*, the viviparous variety of *Festuca ovina*, and *Apargia Taraxaci*, now sunk into a variety of *Apargia* (or *Oporinia*) *autumnalis*. The lake itself seems to contain very little that may interest the collector of "weeds." At its southern end, or head, I observed a few plants of *Utricularia vulgaris*, not then in flower. I may here digress so far as to remark, that this plant occurs, very sparingly, in several localities on Deeside; and that in one locality at least, a moss in the parish of Banchory, *U. minor* is abundant: neither of these plants, so far as I know, flowered last season. To return to Glen Callader. The end at which the lake lies presents some interesting botanical ground, which I am sorry I had not time to visit. It is surrounded by high rocks, the clefts of which contained at the time a few patches of snow.

My route now lay over the shoulder of a ridge that skirts the east side of Loch Callader, and here commenced my ascent from this interesting locality to the still more interesting mass of rock and mountain named Loch-na-gar. Instead of at once climbing the nearest height, I made a considerable circuit through a sort of hollow to the northward; and, though for some time I could not see the top of the mountain, I felt pretty sure that I was gradually winding in the direction of it. In this zigzag ascent the first plant of any interest that I met with was a solitary bush of *Betula nana*. As it had neither flower nor fruit, and as I confidently expected to meet with more of it, I plucked but one specimen; more, however, I did not find. *Lycopodium annotinum* occurred sparingly. There was, as I have invariably observed in the alpine localities I have visited, abundance of *Rubus Chamæmorus* not flowering, and only a patch here and there partly in flower and partly in fruit. Imbedded in moss, which was saturated with the water of a perpetual spring, and near perpetual snow, I picked three specimens of a small plant, with a decumbent rooting stem and large blue flowers, and thought I had found the rare *Veronica alpina*, on examination, however, it appears to be no more than the variety of *V. serpyllifolia* which is termed *humifusa*; I could not detect another specimen. Dr. Murray, "without being certain" that this

plant is distinct from *V. serpyllifolia*, has given it as a distinct species, "as it is at least worthy of a place among a group whose members press closely upon one another." To me it certainly appears distinct, and, if I mistake not, the capsule is *ovate*, and *longer* than the style. Dr. Murray observes—"This is by no means a very alpine plant, being found at Banchory, little more elevated than the sea, and at Glentanner, not much above the common level of the district. It is even met with in the neighbourhood of Paris, in the *Bois de Boulogne*." This seems to confirm the idea that *Veronica humifusa* is a veritable species. I have never seen it except where I found it on Loch-na-gar, at least 2000 feet above the sea. In the same spot, and in other similar places, *Epilobium alpinum*, and especially a small variety of *Saxifraga stellaris*, abounded. The latter scarcely exceeds an inch in height, but the plant, according to its elevation and exposure, grows to all intermediate sizes between one inch and eight.

I next proceeded up the course of a very small stream, which, for the length of at least one hundred feet, ran under an enormous mass of snow. Near this, I picked a specimen or two of *Sibbaldia procumbens*, which was plentiful, but not all in flower. I was now, although I knew it not, on the very shoulder of Loch-na-gar, but had not succeeded in getting one glimpse of its top. I therefore crossed that shoulder, and also the head of a glen which separates the mountain from another ridge, and made towards the top of the latter, which I had some idea was that of Loch-na-gar. I thought, at all events, that by gaining the height before me I should be able to see where I was. In ascending towards it I gathered *Vaccinium uliginosum* without either flowers or fruit; I picked also a few specimens of *Carex rigida*. I had by this time nearly reached the top of the ridge, when, after having several times turned to survey my ground, I had the *pleasure* of seeing the indubitable peak, from which I had wandered, considerably to the north of the height on which I stood, and which is termed Craig-dhuloch. I saw moreover that I had actually been on the shoulder of Loch-na-gar, and had no difficulty in shaping out for myself a route to the top. In order to accomplish my *right ascension*, I had of course both to descend and to retrace my steps. In this retrograde movement I first gathered some specimens of *Luzula spicata*, from eight to ten inches in height. I lighted also upon a patch of a single-spiked *Eriophorum*, which I would fain have called *E. capitatum*, but have not been able to *make* it any other than the more common species, *E. vaginatum*. In reascending Loch-na-gar I gathered *Gnaphalium supinum* and *Azalca procumbens*, the latter, of

course, in fruit. Before reaching the top I passed over a long mossy level, and again gathered *Sibbaldia procumbens*, which was here of larger size: *Luzula spicata* and *Carex rigida* abounded. I tore up a few specimens of *Salix herbacea*, both male and female; and also gathered *Festuca vivipara*, which ascends to the very summit of the mountain, and which, I may add, finds its way down the Dee as far as Banchory, seventeen miles from the sea. My ascent ended on the top of the natural pile of huge stones that forms the peak. I thought of *rhyming* — but I remembered that this was Byron's own "dark Loch-na-gar." Indeed, my thoughts on the subject, by a sort of ingenious anticipation, had occurred long before I ascended the mountain; and when actually "at the utmost top," I was so occupied with sheltering myself from the wind, with taking care of my hat, with the contemplation of the prospect around me, and with the very interesting exercise of demolishing some eatables,—that I had at the moment far more *reason* than *rhyme* in my pate.

After seeing all I could see, I began to descend on the north side, which is excessively steep, and strewn with large blocks of stone. Both at this time, and throughout the day, the wind blew with such violence, and in gusts so sudden, that I was frequently under the necessity of throwing myself on the ground, to avoid being driven along rather faster than was agreeable. I descended in a direction which brought me to the foot of the stupendous rocks which face the north. My time did not permit me to examine this locality; and although I scrambled round the end of the small lake that lies below, my path lying partly over sloping rocks, where a very small slip might have procured me a tolerable ducking, all I found was a variety of *Melampyrum pratense* with very pale yellow or white flowers, having the lip externally purple and the throat yellow. It is now so black, that one can scarcely say whether it has flowers or not. I ascended once more for a short distance in an easterly direction, crossed a low ridge over which I was partly blown by the wind, and then commenced my final descent towards the water of Muick, which I reached about 6 o'clock in the evening, at the distance of about two miles from the lake whence it issues. The only other plant worth picking with which I met after I was fairly away from Loch-na-gar, was a species of *Hieracium* which I take to be *H. Halleri*.* My friend Mr. Adams informs me, that in ascending towards Loch-na-gar from the same locality to which I descended, Dr. Murray and himself gathered the species last named; I

* Apparently just coming into flower; it nearly corresponds with our own specimens of this plant from Ben-na-bourde, collected in August, 1831.—*Ed.*

could find but one specimen. The rest of my walk was of no interest to any one but myself, unless some good-natured sympathetic botanist should feel interested in the information that I continued my journey till half past 1 next morning, when I arrived, sadly way-worn, at the place whence I had started on the 13th.

The above, I fear, will be considered but a meager concern: another day, and a knowledge of the Cryptogamia, of which I am ignorant, would have done much to render even my hasty excursion more interesting. Morven, another mountain celebrated by Byron, which I visited in 1841, does not present so wide a field as Loch-na-gar; it possesses, however, considerable interest. By the side of a small stream at its base I found the beautiful *Sedum villosum*, which I did not detect either on Loch-na-gar or in its vicinity.

Forres, March 8, 1843.

J. B. BRICHAN.

ART. CXXX.—*A List of Mosses and Hepaticæ collected in Eskdale, Yorkshire.* By RICHARD SPRUCE, Esq.

YORK has been said by Mr. H. C. Watson to be “pre-eminently the county of ferns;” and I think I may venture to assert that it is equally unrivalled in its mosses and Hepaticæ. In proof of this I refer to the valuable list of mosses in Baines’s ‘Yorkshire Flora,’ the result chiefly of the investigations of Messrs. Gibson, Nowell, Howarth &c. in a very small portion of the county. Since Mr. Baines’s work was published, several most interesting species have been discovered, and still a considerable part of the county remains unexplored. Our dales, which afford a passage for a multitude of impetuous streams, are peculiarly prolific; and I have assigned to myself the pleasing task of exploring them, in turn, as opportunity shall offer. The vale of the Esk, whose partial examination I have now to detail, terminates at Whitby, fifty-one miles N.E. of York; the river flows nearly due east, and receives during its course several smaller streams, issuing from a like number of dales. The Whitby and Pickering railway enters Eskdale at Grosmont Bridge; and from hence to Whitby (six miles) the country is well wooded, and may be called romantic. The course of the river forms a series of almost semicircular curves, now on the right now on the left of the railway, which crosses it I suppose ten times in that distance; the south side of these curves is frequently a perpendicular cliff, rising directly from the water’s edge to a height of from 30 to 150 feet; and having a northern exposure, is richly clad with mosses

and Hepaticæ. These cliffs are farther interesting from being in the line of the remarkable fault which extends from Whitby Harbour to the plain of Cleveland; Dr. Young, in the 'Geology of the Yorkshire Coast,' has estimated the amount of dislocation to be about 100 feet at the mouth of the Esk, and in some places it is probably more. The formation is the inferior oolite, and consists of beds of alum shale* alternating with ironstone and sandstone. Goadland beck (or the Mirk Esk) joins the Esk just above Grosmont bridge, and Lythe beck (the sweetest spot in the whole district) runs into Goadland beck about half a mile higher up. These two becks are crossed by the great basaltic dyke; but it scarcely rises above the surface, and does not appear to produce any peculiar plants.

I devoted two days (the 30th and 31st of December, 1842) to the examination of the banks of the Esk and its tributaries above mentioned. On the morning of my third and (as it proved) *last* day's botanizing, I proceeded per railway to Fen End, an extensive peat-moss twelve miles west of Whitby, where Goadland beck has its source;† here I encountered a snow-storm, and although I persevered in examining the rocks on the south side of Newtondale (great oolite) until they, as well as myself, were clad in white, I was eventually compelled to desist. I regretted the necessity of this the more, as I had planned out work for other five or six days; perhaps its completion is a treat yet to come.

Note.—I have not annexed the localities to those species which occurred in every spot I visited, and which are generally distributed throughout the county.

Gymnostomum truncatulum.

————— *curvirostrum.* Newtondale; barren. I gathered a moss on wet rocks by the Esk, almost intermediate in size and appearance between this species and *Anictangium Hornschuchianum*. I saw the same plant last summer in Dr. Taylor's herbarium, under the MS. name of *G. nimbosum*; he has long known it on Mount Mangerton, but has never met with fruit. Mr. Ibbotson finds it on Pen-yghent, and Mr. Nowell in Todmorden, but always barren. In a dried state the leaves are remarkably brittle, so that on opening a package of it, I always find numbers of them broken off and strewed about.

Tetraphis pellucida. Lythe beck.

————— *Browniana.* Newtondale; with old fruit.

* The alum-works near Whitby have been celebrated for centuries, and at Grosmont great quantities of iron ore are got up and sent to Newcastle to be smelted at the founderies.

† Another stream rises in this bog, which, although it eventually reaches the same sea, runs in an opposite direction.

Weissia tenuirostris, H. & T. On stones in Lythe beck; barren.

——— *curvirostra*, *controversa* and *recurvata*.

——— *verticillata*. Near the waterfall in Goadland beck; in fruit.

Grimmia apocarpa and *pulvinata*, and *Didymodon purpureus*.

Didymodon Bruntoni. Newtondale; fruit just rising.

——— *rigidulus*. Goadland beck; in fruit.

Trichostomum lanuginosum, *heterostichum* and *fasciculare*. All fruiting on an old wall in the vale of Goadland.

——— *aciculare*. On stones by the Esk and Goadland beck; abundant.

Dicranum bryoides, *adiantoides*, *taxifolium*, *flexuosum*, *scoparium* and *heteromallum*.

——— *glaucum*. Egton moors.

——— *flavescens* and *pellucidum*. Abundant, and with fruit in a good state, by the Esk and Lythe beck. I observed a large variety of the latter, not readily to be distinguished from *D. flavescens*.

——— *varium*. Two or three varieties.

Tortula muralis, *ruralis*, *subulata* and *unguiculata*.

Polytrichum undulatum, *commune*, *aloides* and *nanum*, and *Funaria hygrometrica*.

Orthotrichum affine, *striatum* and *crispum*.

Bryum albicans. Frequent on wet rocks by the Esk; barren. This plant is remarkably fragile; two or three times I thrust my stick into the broad flakes above my head, hoping to procure a patch entire, but I only brought down a shower of mutilated stems around me.

——— *argenteum*, *capillare*, *cæspititium*, *ventricosum*, *ligulatum*, *punctatum* & *hornum*.

——— *marginatum*. Lythe beck; scarce.

Bartramia pomiformis and *fontana*, and *Leucodon sciurioides*.

Daltonia heteromalla. On an apple-tree at Eskdaleside; in fruit.

Fontinalis antipyretica. In the Esk &c.

Hookeria lucens. Goadland beck.

Hypnum trichomanoides, *complanatum*, *undulatum* and *denticulatum*.

——— *medium*. At the roots of trees by the Esk.

——— *serpens* and *populeum*. The latter rather scarce.

——— *purum*. In fruit near Lythe beck.

——— *piliferum*. Abundant, but without fruit.

——— *catenulatum*. A single tuft on a wet cliff by the Esk.

——— *plumosum*. The most frequent moss in Eskdale.

——— *Schreberi*, *sericeum*, *alopecurum*, *dendroides*, *curvatum*, *myosuroides*, *splendens*, *proliferum* and *prælongum*.

——— *flagellare*. Abundant by the Esk and Goadland beck, but I saw no fruit.

——— *rutabulum*, *velutinum*, *ruscifolium*, *cuspidatum* and *squarrosus*.

——— *confertum*. Frequent. A large variety on stones in the streams, with the leaves sub-bifariouly arranged and nearly entire.

——— *loreum* and *triquetrum*. Fruiting in Newtondale.

——— *filicinum* and *commutatum*. In great profusion on wet rocks.

——— *palustre*, *aduncum*, *cupressiforme* and *molluscum*.

——— *multiflorum*, Fl. Hib. On trees in Eskdale, and on a wall in the village of Egton, but scarce.

Marchantia conica and *Jungermannia asplenioides*.

Jungermannia lanceolata, L. On wet rocks by the Esk, and with calyces on stones in

Lythe beck. The existence of this plant in Britain was formerly doubted; Sir W. J. Hooker says — “I have never seen British specimens; and I suspect the authors just named (Hudson, Withering, &c.) may have mistaken some other species for it;” (see Brit. Jung. and Eng. Flor.) I believe its claim to a place in our Flora was satisfactorily established a few years ago by Mr. Jenner, who found it at Tonbridge Wells. Its closest affinity may be with *J. pumila*, but in my deliberate opinion *J. polyanthos* is the species for which it is most likely to be passed over; I found the two plants growing intermixed, and certainly differing very little in size and general appearance. In *J. lanceolata* the *stems* are procumbent, and copiously furnished with strong radicles on their under side. The *leaves* are horizontal, but slightly deflexed (except the two or three terminal ones, which are vertically folded together, as we sometimes see the leaflets in leguminous plants), longer than broad by about one half, and of nearly equal breadth from the base to near the summit, where they are rounded off, or rarely somewhat retuse; their colour brownish. The *calyx* is terminal, one third longer than the perichætal leaves, curved upwards, subcylindrical, broadest at the summit, where it is remarkably depressed, with a very minute slightly elevated mouth. *Jung. polyanthos* is altogether of a greener hue; the stem is more slender; the leaves mostly shorter, still more quadrate in their form, and often emarginate, the reticulation is also closer. Besides these marks of distinction, there are the more important ones of the presence of *stipules* (though unusually small in proportion to the leaves), and the curious two-lipped calyx with its much exerted calyptra, which will always suffice to keep this species far apart from *J. lanceolata*. The plant mentioned in my list of Wharfedale mosses (Phytol. 197) as an entire-leaved variety of *J. asplenoides*,* is not unlike *J. lanceolata* in appearance, but the calyx is totally different.

Jungermannia riparia, Taylor, MS. On wet rocks by the Esk; with calyces. This species, which has very lately been distinguished by Dr. Taylor, was first detected by him at the Dargle, Co. Wicklow; and I had the pleasure of gathering it in his company last July, at Blackwater Bridge, Co. Kerry. It is intermediate in size between *J. cordifolia* and *J. pumila*, and has some points of resemblance to each, but differs from both in its obovate very obtuse calyx. I have gathered it in two other Yorkshire stations, namely, Wharfedale and Crambeck on the Derwent, and Mr. Nowell sends it from Todmorden.

———— *sphærocarpa*. Abundant, but sparingly in fruit. I observe that the young calyx has a short tubular mouth, without any trace of teeth.

———— *hyalina*. Equally common with the last, and growing intermixed with it, but distinguished by its larger size and purplish tinge, by the broader and more wavy leaves, by the vertically compressed and angulate calyx, and, above all, by the perichætal leaves growing upon, or adhering to, the calyx.

———— *emarginata*. Eskdale and Newtondale. I found a few capsuliferous specimens.

———— *inflata* and *excisa*. With calyces on Egton moors. A small variety of the latter in Newtondale, with nearly all the leaves trifid.

———— *bicuspidata*, *nemorosa* and *albicans*. With calyces.

———— *umbrosa*. Newtondale and woods round Grosmont bridge. This beau-

* Mr. Wilson considers this to be a distinct and undescribed species.

tiful and rare species might easily be overlooked as a young state of *J. nemorosa*, from which it is, however, truly distinct.

Jungermannia complanata and *scalaris*. In fruit.

———— *polyanthos*. By the Esk and Lythe beck; with calyces.

———— *Trichomanis* and *bidentata*.

———— *reptans* & *platyphylla*. A solitary tuft of each observed in Newtondale

———— *laxifolia* & *trichophylla*. Near the waterfall in Goadland beck; calyces

———— *dilatata*, *Tamarisci*, *pinguis*, *epiphylla* and *furcata*.

———— *Lyellii* ? Near the waterfall in Goadland beck, growing upon *Hypnum commutatum*. This approaches nearest to the variety called *J. hibernica* by Hooker, but is above twice the size of any specimens in my possession under either name, and the perichætium (or outer calyx) is longer, with repeatedly lacinated segments. I found plenty of pistilla but no fruit, the season being too early.

A remarkable circumstance in the cryptogamic Flora of Eskdale is the total absence of the genera *Neckera* and *Anomodon*; whereas in other districts of similar appearance, but at a distance from the eastern coast, such as Wharfedale, Castle Howard, &c., I have found the two species of *Anomodon* and two of *Neckera* (*N. pumila* and *crispa*) distributed in tolerable plenty; and the abundance of *N. viticulosum* is generally characteristic. *Jungermannia reptans* and *platyphylla* also, plants which are usually so abundant in rocky situations, do not appear to exist in Eskdale; their sparing occurrence in Newtondale has been remarked above, but this is fourteen miles from the sea, and belongs to another system of drainage.

RICHARD SPRUCE.

York, February 17, 1843.

ART. CXXXI.—*Remarks on the threatened extermination of rare Plants by the rapacity of Collectors.* By S. H. HASLAM, Esq.

Milnthorpe, Westmoreland,

March 7th, 1843.

“Fortunati ambo, si quid mea carmina possunt.”

SIR,

I HAILED the first appearance of ‘*The Phytologist*’ with pleasure, as I thought it promised to supply a desideratum much wanted in our scientific periodicals, and would afford to many a plodding botanist, as yet “unknown to fame,” an opportunity of recording his observations in a less formidable manner than by drawing attention to himself in a publication of higher pretensions, if, indeed, he had the chance of seeing such a book at all. I dare say there are few

of us who have not within the range of our acquaintance some one or other, the result of whose labours we have often wished could be made available for the general good, but whose habits of retirement, or, it may be, the “*res angusta domi*,” had always kept in the back ground. Now, your useful little publication seems just adapted for the very purposes I allude to, and I think I am justified in saying, that the expectations of both editor and contributor must have been very fairly realized; and I am glad to think that the pages of ‘*The Phytologist*’ have recorded many valuable hints, and put your readers in possession of much pleasing information respecting Botany and botanists.

Having premised thus much, let me draw your attention to another part of the subject, less gratifying indeed (for every medal has its reverse), but which I trust you will see in the same light as myself; and as ‘*The Phytologist*’ is the avowed organ of enlightened science and practical Botany, permit me, through the medium of its pages, to awaken a sympathetic feeling in favour of those very treasures that are the objects of our favourite pursuit. And let me, ere the botanizing season has commenced, impress upon the minds of collectors the desirableness of forbearance and moderation, when culling specimens for their herbaria,—particularly amongst what are rapidly becoming the “*plantæ rariores*” of our island. I frequently caution brother botanists on this head, and seldom get more than a smile in return. But if the legitimate end of Botany be a more intimate acquaintance with plants in a growing state; and if it be more delightful to feast our eyes on these gems of the earth in the garden of Nature, than to handle a dry and often disfigured specimen in the herbarium of a botanist;—surely it is a matter of grave moment, that the war of extermination which has lately been waged against our best and rarest plants, should at length be put an end to.

Some of your readers may perhaps say that I am fighting with a shadow, or that my own alarms have pictured an exaggerated state of things; but when I see a recently-formed Society, determined, I suppose, to outstrip all others in the work of extermination, putting forth a list, including *some* of the rarest of our indigenous plants, and desiring its contributors to send no more of them, as there are enough on hand to distribute for several years;—can it be said that my fears are altogether groundless? What pretty picking there must have been, to amass such a lot of treasures! And the machinery by which such a system is kept alive, is not less alarming. Tradesmen, who cannot devote the time to it themselves, or else are verily ashamed of being caught at it—“*palman qui meruit ferat*”—send forth their apprenti-

ces to dig up *every* specimen they can find, of certain rare plants in their locality, and these are bundled off until the market is actually glutted.

Yet more startling facts I could adduce, but I trust that I have said enough to awaken attention to the subject. What can be more painful to the true and ardent lover of Botany, than to find those spots where Nature has, as it were, secreted her choicest gems, visited only for the purposes of plunder and filthy lucre? I could name many plants that, not long ago, were plentiful in this neighbourhood, but which, since the establishment of railroads and learned Societies, have become nearly extinct. The interests of science surely do not require such barbarous work, and her legitimate sons, I am equally certain, would not sanction it.

I think I may venture to assert, without fear of contradiction, that no small portion of the pleasure arising from botanical pursuits, consists in the toil and enthusiasm of a botanical ramble; and those specimens are most highly prized that have cost us most personal exertion to obtain. But it is no uncommon thing, now-a-days, to see a collection made up entirely of "contributions from friends;" and by the system I am complaining of, a herbarium may be made up "on the shortest notice," and without costing its possessor one hour's fatigue in the way of genuine Botany. All this may be well enough, if confined to the commoner plants, but I really regret to see our darling science degraded into a mere handmaid of "commerce and trade," with the additional mortification of knowing that, one by one, our rarest plants are disappearing from their long-recorded habitats:—

"Oh infelix operis summa!"

Hoping that these remarks may be taken in good part by all the *real friends* of Botany,

I remain, Mr. Editor,

Your most obedient Servant,

S. H. HASLAM.

To the Editor of 'The Phytologist.'

ART. CXXXII. — *Observations on the publication of Local Lists of Plants.* By EDWIN LANKESTER, Esq., M.D., F.L.S. & B.S.Ed.

IN prosecuting the subject of the distribution of plants, it is exceedingly desirable that correct lists of the species that grow even in small districts should be obtained. The value of lists of plants from small

districts must, however, be always proportioned to the variety of soil, elevation, climate, &c., which the district may possess. Thus a list of plants from a small district of level or swampy ground, would not furnish so much valuable matter as a list from a smaller district where streams or hills produced a difference in the dryness and constitution of the soil. Take for example the neighbourhood of Askern, a small district of Yorkshire, the centre of which is seated in about the middle portion of the great escarpment of magnesian limestone, which runs through the counties of Nottingham, York and Durham. Its extent is about four miles east and west, and two miles north and south. To the east, the magnesian limestone dips under the new red sandstone, which is covered in this district by an immense swamp. Directly through the district, in a south-easterly direction, runs the river Went, making its way along a picturesque valley, which passes at right angles through the magnesian limestone formation. The river is here about thirty feet above the level of the sea, and the highest hills above its banks are about three hundred and eighty feet. The villages of Campsall, Burghwallis and Smeaton are seated entirely on the magnesian limestone, whilst Sutton, Askern and Norton include some of the marshy districts lying above the new red sandstone.

In publishing lists of plants of particular districts, botanists have for a long time felt the inconvenience of going over a number of the names of plants which are common to almost all districts; and yet, as no rule has been offered which would answer generally for the exclusion of common plants, all plants must be included in lists of any value.

In drawing up a Flora for my 'Account of Askern,'* I have endeavoured to obviate this difficulty; and I am not without hope that the idea acted on may be found generally applicable, at least to Great Britain, and that it will lead to the more general publication of local Floras, which will supply material for the perfecting our knowledge of the geographical distribution of plants.

In the Flora alluded to I have distributed the plants in four tables. In the first table is a numerical statement of the genera and species of each natural order. From this it will be seen that there are 428 species of phanerogamic plants, belonging to 212 genera and 78 natural

* An Account of Askern and its Mineral Springs; together with a Sketch of the Natural History, and a Brief Topography of the Immediate Neighbourhood. By EDWIN LANKESTER, M.D., F.L.S., &c. London: Churchill, Princes St., Soho. 1842. A very neat little book, evidently got up with great care on the part of the author, and containing much information relative to the Antiquities, Topography and Natural History of Askern and the surrounding district.—*Ed.*

families. The second table contains a list of the plants that more particularly distinguish the district. In drawing up this table, those species have been selected that are admitted into Mr. Watson's 'New Botanist's Guide,' which contains only the plants found not to be common to eight out of twelve local Floras of Great Britain. I have followed Mr. Watson in this respect, not because I think his list the best that could be constructed, but because his book is very generally known to botanists in this country. Since the publication of Mr. Watson's book, other Floras have been published, and materials furnished for a more correct list of common plants than he has given; and I would suggest that it might be worth the while of some of our botanical societies to construct a list, which, by excluding common plants, would enable the botanist to publish only the peculiar and most interesting forms. But these two tables, even with Mr. Watson's Guide and a British Flora, would give only an incomplete view of the Flora of a particular district, since many of the common as well as of the rarer plants might be absent from it. In order to meet this defect, I have constructed a third table, including the plants which were common to the twelve counties examined by Mr. Watson, but which I did not find near Askern. In the present case I believe this table to be somewhat imperfect, but I have mentioned it in order to show the manner in which my plan may be carried out. With these three tables, a list of British plants, and Mr. Watson's Guide, we have the elements of a complete Flora of a district.

There is, however, one point in which such a Flora would be defective, and that is the comparative rarity or frequency of the excluded common plants. This is, however, always a difficult point to estimate, and little has hitherto been done towards enabling us to compute, with any proximity to the truth, the number of individual plants growing in a district. In my fourth table, by way of meeting in some measure this inconvenience, I have added the names of a few plants which are rare in the Askern district, but which are excluded as common from Mr. Watson's list.

EDWIN LANKESTER.

19, Golden Square,
January, 1843.

[We are greatly obliged to Dr. Lankester for his valuable suggestions; the adoption of his plan would, however, involve the necessity of printing at least *four* lists instead of *one* for every district illustrated. The subject of publishing local lists of plants is one which has often had our serious consideration. For various reasons we have hitherto preferred printing them exactly as received from the contributors, to whom our thanks are due for the pains they have taken to render their lists correct and com-

plete. The following considerations have had great weight in inducing us to publish these lists without mutilation. Botanists confessedly require more exact information than they at present possess, on many points relating to the general distribution of plants, common as well as rare. In all matters connected with this subject, we know of no botanist whose opinions are more worthy of regard than those of Mr. Watson; and that gentleman, at no very distant period, has well observed, that owing to the want of sufficient data we are as yet unable to say with certainty, that even such common and widely spread plants as the daisy and the dandelion are to be found in every county of the United Kingdom. Such data it is the province of local lists to supply, and we would have them include the name of every species growing in the district to which they refer. For our own part we can truly say, that if carefully drawn up, and more especially if they contain short remarks on any interesting circumstances connected with the species, our only objection to these lists arises from the fear that some of our subscribers may think that their place would be better occupied by matter more generally readable. We shall be glad to receive communications on this subject; but until some better plan be determined on, we trust we shall be excused if we “e'en gang our ain gate,” printing the lists of flowering plants, mosses, &c. entire, and in future transferring localities of ferns to Mr. Newman, for publication in his county lists.—*Ed.*]

ART. CXXXIII.—*Notice of ‘A Visit to the Australian Colonies. By JAMES BACKHOUSE.’* London: Hamilton, Adams & Co. 1843.

To a considerable number of our readers it is well known that the author of this work is a member of the Society of Friends, and that his visit to the Australian colonies was undertaken “for the purpose of discharging a religious duty.” But our notice of this narrative will be confined to that part of it which is strict accordance with the design of ‘*The Phytologist*,’ namely, the author’s observations on the vegetable productions of these colonies; and we trust that we shall be able to show that James Backhouse is an observant and accomplished botanist. To many of our readers who are acquainted with this excellent man, his profound botanical knowledge is already well known; still, even to these, our remarks may not be unacceptable, since they will collect, and somewhat condense, observations on this interesting science, which are scattered through a volume of 560 pages. The visit “occupied a period of six years, terminating with 1838.” We shall divide our notice into three parts:—Van Diemen’s Land, Norfolk Island and New South Wales.

VAN DIEMEN’S LAND.—As far as Botany is concerned the narrative commences at Hobart Town, where the author landed in February, 1832, and our first botanical sketch is of a hill near that town. This hill—

“Was clothed with gum trees—species of *Eucalyptus*—of large size, having foliage somewhat like willows, and growing among grass and small shrubs. Many trees

were lying on the ground, and in various stages of decay. Smaller trees, called here honeysuckle, she oak, cherry-tree, and wattle, were interspersed among the others, and the ground was decorated with *Leptospermum scoparium*, *Corræa virens*, *Indigofera australis*, and *Epacris impressa*; the last of which resembles heath, with white, pink, or crimson flowers. The trees in this country often bear the name of others belonging to the northern hemisphere. Thus the honeysuckle of the Australian regions is generally some species of *Banksia*, often resembling a fir in growth, but having foliage more like a holly; and the cherry-tree is an *Exocarpos*—a leafless, green, cypress-like bush, with small red or white fruit, bearing the stone outside!”—p. 22.

Speaking of introduced plants the author observes that the climate at Hobart town is too cold for grapes and cucumbers, but that apples, pears, quinces, mulberries and walnuts succeed better than in England. On the basaltic hills about Hamilton, the prevailing tree is the oak — *Casuarina quadrivalvis*. “It seldom grows in contact: its trunk is about 10 feet high and 5 feet round; its head is spherical, and 10 or 15 feet in diameter, and consisting of pendulous, leafless, green, jointed twigs, resembling horse-tail weed.” At Mount Wellington, *Acacia Oxycedrus*, 10 feet high, was in flower. “This, along with numerous shrubs of other kinds, formed impervious thickets in some places, while, in others, *Epacris impressa* displayed its brilliant blossoms of crimson and rose-colour.” We pass on to the description of a fern valley, which is almost enough to make a botanist emigrate to this distant land. In the plate accompanying this sketch the author is seen crossing the stream on the trunk of a fallen *Eucalyptus*; how we long to be his companion! Loddiges and Ward, what would you not give to realize such a scene!

“The brook that supplies Hobart Town with water, flows from Mount Wellington through a valley at the foot of the mountain. Here the bed of the brook is rocky, and so nearly flat as scarcely to deserve the name of The Cascades, by which this place is called. Many dead trees and branches lie across the brook, by the sides of which grows *Drymophila cyanocarpa* — a plant allied to Solomon’s seal, producing sky-blue berries on an elegantly three-branched nodding top. *Dianella cærulea*—a sedgy plant — flourishes on the drier slopes: this, as well as *Billardiera longiflora* — a climbing shrub, that entwines itself among the bushes — was now exhibiting its violet-coloured fruit. In damp places by the side of the brook, a princely tree-fern, *Cybotium Billardieri*, emerged through the surrounding foliage. A multitude of other ferns, of large and small size, enriched the rocky margins of the stream, which I crossed upon the trunk of one of the prostrate giants of the forest, a gum-tree of large dimensions, which had been uprooted by some blast from the mountain; and in its fall had subdued many of the neighbouring bushes, and made a way where otherwise the forest would have been inaccessible. On descending from this natural bridge, to examine a tree-fern, I found myself at the foot of one of their trunks, which was about five feet in circumference and ten feet in height. The lower part was a mass of protruding roots, and the upper part clothed with short remains of leaf-stalks, looking rough and blackened: this was surmounted by dead leaves hanging down, and nearly obscuring the trunk

from distant view: above was the noble crest of fronds, or leaves, resembling those of *Asplenium Filix-fœmina* in form, but exceeding eleven feet in length, in various degrees of inclination between erect and horizontal, and of the tenderest green, rendered more delicate by the contrast with the dark verdure of the surrounding foliage. At my feet were several other ferns of large size, covering the ground, and which, through age and their favourable situation, had attained root-stocks a foot in height, crowned by circles of leaves three times that length. Other plants of tree-fern, at short distances, concealed from my view, by their spreading fronds, the foliage of the lofty evergreens that towered a hundred feet above them. The trunk of one of the tree-ferns was clothed with a *Trichomanes* and several species of *Hymenophyllum*—small membranaceous ferns of great delicacy and beauty. On a rocky bank adjoining, there were other ferns, with creeping roots, that threw up their bright green fronds at short distances from each other, decorating the ledges on which they grew. In the deepest recesses of this shade I could enjoy the novel scene—ferns above, below, around—without fear of molestation; no dangerous beasts of prey inhabiting this interesting island.”—p. 34.

On leaving Hobart Town the author sailed to Port Davey, and thence to Macquarie Harbour, where he describes the timber as being very fine. The Huon pine, valuable for ship-building &c., abounds on the eastern side; it attains a height of 100 feet, and a circumference of 25 feet; it has a pyramidal shape, and the branches are clothed with numerous slender scaly branchlets of lively green, as in the cypress and *arbor vitæ*. The celery-topped pine—*Thalamia asplenifolia*—is suitable for masts; myrtle for keels; and the roots of light-wood—*Acacia Melanoxylon*—make beautiful veneers. This latter wood derives its name from swimming in the water, the other woods, pine excepted, generally sink. Hats are made of the shavings of some *Acacias*, “as well as from broad-leaved sedges—*Lepidosperma gladiata*; the leaves being first boiled and bleached.” At Philips Island, in the same vicinity, we have another peep at the tree ferns.

“The huts were almost overgrown with the Macquarie Harbour vine, a luxuriant climber, bearing small acid fruit. We walked over the island, and down one of its sides, which was woody, and which exhibited the finest tree-ferns we had seen, and in great profusion. They were of two kinds, one of which we did not meet with elsewhere. Some of their larger fronds or leaves were thirteen feet long, making the diameter of the crest twenty-six feet. The stems were of all degrees of elevation, up to twenty-five or thirty feet; some of them, at the lower part, were as stout as a man’s body: those of *Cybotium Billardieri* were covered with roots to the outside: the whole length of those of the other species—*Alsophila australis*—was clothed with the bases of old leaves, which were rough, like the stems of raspberries, closely tiled over each other, and pointing upwards. There was also a number of other ferns, of humble growth: two species of the beautiful genus *Gleichenia* had tough, wiry stems, which were used in the settlement for making bird-cages.”—p. 55.

At Macquarie Harbour and Port Davey a species of *Blandfordia* was observed, a lily-like plant, with a crest of scarlet tubular flowers : and on the hills near the former place, was a lichen of a texture resembling net-work ; this, “in the abundant rain, was distended into masses resembling cauliflowers.” “In some places —— cyperaceous plants entwine themselves among the larger shrubs and ascend to their tops, and lichens hang to a great length from the boughs of some of the trees.”

Returning by sea to Hobart Town, our author made an excursion on the opposite side of the river to that on which the town stands: he notices the appearance of *Anguillaria dioica*, a little, purple-spotted, white-blossomed, bulbous plant, which was decorating a sunny bank as one of the first harbingers of spring, (August 27th); and also comments on the strange appearance of trees in full foliage laden with snow. It is, we presume, generally known, that the trees of Australia may nearly all be regarded as a kind of evergreens, although not so strictly entitled to that name as those so commonly cultivated in our English gardens.

On the 26th of September J. Backhouse sailed for Flinder's Island, of which he records nothing botanical that is particularly worthy of notice. On the 20th of October he reached George Town, on the main land of Tasmania ; on the 30th Circular Head, and on the 31st Woolnorth. The seaweeds of this shore are of prodigious magnitude ; one, “a palmate species, has a stem thicker than a man's arm, and proportionately long. The flat portion between the stem and the ribbon-like appendages is so large as to be converted by the blacks into vessels for carrying water. For this purpose they either open an oblong piece so as to form a flat bag, or run a string through holes in a circular piece, so as to form a round one.” Returning to Circular Head he proceeded thence by land to Emu Bay, noticing by the way the grass-trees, to which we shall again recur, and a beautiful *Blandfordia*, whose stems were eighteen inches high, and supported crests of from ten to twenty pendulous red blossoms, margined with yellow, an inch and a half long, and three quarters of an inch wide at the mouth. On some of the hills *Banksia serrifolia* was the prevailing tree ; “it is equal to a pear-tree in size, has leaves three or four inches long and five-eighths broad, and strongly toothed : its heads of flowers are six inches long and twelve round, and the seeds are as large as almonds.” After a short rest at Emu Bay,—

“We set out for the Hampshire Hills, distant $20\frac{1}{2}$ miles, through one of the most magnificent of forests. For a few miles from the sea, it consists chiefly of white gum

and stringy-bark, of about 200 feet in height, with straight trunks, clear of branches for from 100 to 150 feet; and resembling an assemblage of elegant columnus, so irregularly placed as to intercept the view at the distance of a few hundred yards. These are elegantly crowned with branching tops of light willow-like foliage, but at an elevation too great to allow the form of the leaves to be distinguished, yet throwing a gentle shade on the ground below, which is covered with splendid tree-ferns and large shrubs, and carpeted with smaller ferns. Some of the larger stringy-barks exceed 200 feet, and rise nearly as high as 'the monument' before branching. Their trunks also will bear a comparison with that stately column, both in circumference and straightness. The bark of these trees is brown and cracked: that of the white-gums is French grey, and smooth.

"The prostrate trunks of these sylvan giants, in various stages of decay, add greatly to the interest of the scene. Some of them, lately fallen, have vast masses of the rich red earth in which they grew, still clinging to their roots; others, that have been in a state of decay before they fell, present singular ruins of shattered limbs and broken boughs; others, that seem to have been in a state of decomposition for ages, have become overgrown with various ferns and shrubs.

"As the distance from the sea increases, the Australian myrtle and sassafras, of dark dense foliage, become the prevailing trees. In these denser forests, tree-ferns form nearly the sole undergrowth, except the small, starry ferns, of low stature, of the genus *Lomaria*, that cover the ground thinly. Some of the tree-ferns have trunks 20 feet high. Their leaves are from 8 to 12 feet long, and the new ones, now forming, rise in the centre like elegant crosiers."—p. 111.

(To be continued).

ART. CXXXIV.—*Varieties.*

270. *Note on the occurrence of Cuscuta Epilinum and Saponaria Vaccaria in Morayshire.* In July, 1842, Mr. Wilson of Alves detected these two plants in a field of flax, in the parish of Alves, Morayshire, along with *Camelina sativa*. Mr. Babington's remark (*Phytol.* 250) that *C. Epilinum* does not make its appearance among flax raised from American and Riga seed, led me to enquire whence the seed in the present case was imported. I am informed that all the flax-seed used in this district is procured either from America or Holland; that those who are in the habit of using both, can distinguish American seed from Dutch by the *rounder* shape of the former; and that the seed respecting which I made the enquiry, was the remains of a cargo which had been cleared out at London, was obtained from the vessel on its arrival at Burghhead (a small port on the Moray Frith), and was considered to be American on the ground just mentioned.—*J. B. Brichan; Forbes, February 14, 1843.*

271. *Note on a supposed new British Æcidium.* Last August I found at this place a species of *Æcidium*, which is not noticed in

Hooker's 'English Flora,' our text-book for British cryptogamous Botany. On referring to Gray's Natural Arrangement, I found the description of an *Æcidium* that in some respects answers to mine, of which I could secure but three specimens, as the season for it appeared to be nearly over. The following is Gray's description.—

"*Æcidium asperifoliarum*. Thecæ confluent, wine-glass shape, half immersed, pale yellow; sporidia yellowish white. *Æcidium asperifoliæ*, DC. Syn. 50. On the lower face of various Boragineæ. Leaves hollowed on the upper face."

My notes are as follows:—

Æcidium —? Spots yellowish, disfiguring and incrustating the leaves. Pseudo-peridia generally hypogynous, sometimes amphigenous, more or less confluent: sporidia orange. On *Lycopsis arvensis*. Thame, August 24, 1842.

I am uncertain whether the difference in the colour of the sporidia will constitute a new species; in other respects it agrees pretty well with DeCandolle's.—*Ph. B. Ayres, M.D.; Thame, Feb. 22, 1843.*

272. *Note on the Fruit of Umbelliferæ.* Before I close my note I wish to make a remark on the discussion in your journal concerning the poisonous properties of the seeds of Umbelliferæ. Lindley's statement is copied from DeCandolle's Essay on the Medical Properties of Plants, and DeCandolle is certainly in error. I think the most accurate view on this subject is, that those seeds in which vittæ are present are innocuous, while those which have no vittæ are either suspicious or poisonous. In the former, the proper juice of the plant is converted into volatile oil; in the latter, it is merely deposited in a more concentrated form.—*Id.*

273. *Note on Gigartina compressa.* My attention having been directed to some remarks on the Jusna or Ceylon moss, by M. Guibourt of Paris (Provincial Medical Journal for February, 1843, No. 128), I am induced to trouble you with some observations made by me on this plant many years since, when it occurred in considerable abundance at Sidmouth, as they agree so entirely with those of M. Guibourt, that there can be no doubt of their identity. The species in question is the *Fucus lichenoides* of Turner, described and figured in his 'Historia Fucorum,' ii. 124, t. 118; the *Gracilaria lichenoides* of Greville's 'Cryptogamic Flora,' p. 125, from specimens and a drawing of the recent plant, communicated by me from Sidmouth, *Fucus lichenoides* of Linn. &c. Subsequently, finding it agree with *Sphærococcus compressus* of Agardh, and that the term *lichenoides* was preoccupied and inappropriate, Dr. Greville named it *Gracilaria compressa* in his 'British Algæ;' and it is now *Gigartina compressa* of Hooker's 'British Flora,' 299, Harvey's 'Manual of British Algæ,' 74,

and Wyatt's 'Algæ Danmonienses,' iii. No. 108. *Mem.*— "Sidmouth, 1827. Turner's description of this plant is better than the figure, which is evidently from a bleached specimen. It has been abundant here from June to October, often twelve inches high, in fine fructification, capsules and granular imbedded seeds on distinct plants. The substance when fresh is cartilaginous but tender, full of moisture and brittle, breaking with the slightest touch, and shrinking to less than half its size in drying, and does not recover on subsequent immersion. It is cylindrical in the upper, compressed in the lower branches. When most plentiful I tried several experiments with it. Boiled in water it became of a most beautiful semitransparent green colour, and ate like delicate French beans, with a peculiar crispness and very agreeable taste. It did not dissolve after boiling seven hours, but lost much of its size. Vinegar nearly dissolved it, and changed the colour to yellowish brown. Boiled in syrup of preserved apricots it became a little yellowish, but retained its crispness and was extremely good: and having but little flavour of its own it might be made to taste of lemon, ginger, &c." I enclose part of two plants in the different modes of fructification. As a British species I would remark that its nearest affinity on the one hand is with *Gigartina confervoides*, on the other with *Rhodomenia polycarpa* of Greville (the *Fucus Sarniensis* of Turner). This last species has a much more compressed, nearly flat and broader frond, but the structure and fruit are the same, and on this account, in a future arrangement, it will doubtless be referred to its proper genus.—*Amelia W. Griffiths; Torquay, March 1, 1843.*

274. *Enquiry respecting Orchis hircina*, Scop., and *Orchis macra*, Lindl. May I enquire if any kind friend can favour me by mentioning any recently verified locality for either of these remarkable species? The first-named is said to occur in the neighbourhood of Dartford, but I am not aware of any living botanist having gathered it. Both species are noted in the books as Kentish plants.—*Edward Edwards; Bexley Heath, Kent, March 4, 1843.*

275. *Warwickshire locality for Equisetum fluviatile*. I fully expected some correspondent would have given a locality for *Equisetum fluviatile*, and am sorry I did not send a solitary station for the Warwickshire list of ferns. It was discovered in a damp copse near Elmdon, by James Clift; and when out there last autumn I was told of it, and saw the decaying fronds. It was scattered rather sparingly, but I should suspect it to be growing in other similar situations in that neighbourhood. *Equisetum sylvaticum* and *palustre* were growing sparingly near the same spot; and in a meadow close by, a new habi-

tat for *Parnassia palustris* was pointed out, where it had been in tolerable abundance last season. — *David Cameron ; Botanic Garden, Birmingham, March 5, 1843.*

276. *Reply to Mr. Watson's Enquiry respecting Mr. S. Gibson.* As your correspondent Mr. Watson appears to have some doubts as to the identity of the S. Gibson mentioned by Mr. Francis in his 'Analysis of British Ferns,' in connection with *Polypodium calcareum*, and again in Mr. Watson's 'New Botanist's Guide, — (Phytol. 524) ; perhaps you will allow me to make a few remarks, which will, I think, set the question at rest. In 1830—33 I sent several parcels of dried plants to Mr. R. B. Bowman ; in these parcels there was every plant mentioned in Watson's Guide, with the name of Gibson connected with them, with the exception of *Geranium nodosum*, and that I never sent to any correspondent, since I never had more than one specimen of the plant, and that specimen is still in my possession. If the *Geranium* in question be any *Geranium* which I sent to Mr. Bowman, it will be *Geranium pyrenaicum*, and the locality would be Washerlane, near Halifax : and the labels for *Polypodium calcareum* would be written *Sheden Clough, near Burnley, Lancashire*. If Mr. Bowman sent Mr. Watson *fragmentary* and *ill-dried* specimens, I cannot help that ; but I must say that I think Mr. B. might have sent a few good ones out of the two or three hundred specimens of *P. calcareum* which I sent him. The locality for *Meum Athamanticum* should have been Ripponden, not Ripon, as in the 'Botanist's Guide,' p. 284. If Mr. Watson or any of his friends should happen to be in this neighbourhood, and should wish to see the plants growing, I shall be happy to go with them to *all* or any of the localities given on my authority, the *Geranium nodosum* and *Asarum europæum* excepted. In 1830 I could have gathered five hundred specimens of *Asarum*, and have left perhaps twice that number ; in 1842 I visited the locality in company with Mr. Borrer, and we sought for some time before we could find a single specimen, but at length we found a few, perhaps six or seven, some of which we gathered, and the rest we left. If it do appear this season, I expect it will be the last ; and then the Yorkshire Flora will lose *Asarum europæum*, since we have no other authentic locality for it in the county. — *Samuel Gibson ; Hebden Bridge, March 15, 1843.*

277. *Note on Polypodium Dryopteris.* I am informed by my relative, the Rev. T. Gisborne, that this fern was *not* introduced at Yoxall Lodge, as suggested in a former No. (Phytol. 509). It exists in extremely small quantity, and the spot has not been altered since the enclosure of Needwood Forest. — *C. C. Babington ; Cambridge, March 1843.*

ART. CXXXV.—*Proceedings of Societies.*

LINNEAN SOCIETY.*

June 7, 1842.—The Lord Bishop of Norwich, President, in the chair.

The Hon. H. Wright, of the Ceylon Civil Service, presented specimens of the fine Ceylon cinnamon of commerce, of the unusual length of eleven feet.

Read, the commencement of a paper by Mr. Clark, "On the Sea Cocoa-nut of the Seychelles, (*Lodoicea Sechellarum*, Comm. and Labill.)

June 21.—Edward Forster, Esq., V.P., in the chair.

Read, "Observations on the Growth and Reproduction of *Enteromorpha intestinalis*." By A. H. Hassall, Esq. The author states that in their earliest stage of development the tapering filaments of this plant consist of a single series of cells placed end to end. Each cell is afterwards bisected by a longitudinal line; other lines subsequently make their appearance, and each original cell is thus ultimately divided into several others, each of which in its turn enlarges and is divided in the same manner. From the repetition of this process the filaments increase in size, lose their confervoid character, present a reticulated appearance and become cylindrical and hollow. The author states that in each articulation of the filaments, even when no thicker than a horse-hair, a dark central nucleus is developed, and that this is the reproductive germ, which he doubts not undergoes repeated division in the same manner as the reproductive globules of the *Ulvæ*. These nuclei germinate while enclosed within the cells, the filament still retaining its freshness and vigour; and from them arise the jointed tapering filaments first described, which, after the rupture of the parent cell, and while their bases are still fixed within it, strongly resemble a parasitic *Conferva*. This development, division and growth of cells and reproductive bodies appears to be constantly going on, whence most specimens of the plant present examples of each stage of formation. From these observations Mr. Hassall is led to regard *Enteromorpha intestinalis* as bearing a relation to the *Confervæ* in its young articulated filaments, and to the *Ulvæ* in its reproductive globules. The author objects to the tautology of the specific name, and proposes that of *lacustris* in its place.

Read also the conclusion of Mr. Clark's paper "On the Sea Cocoa-nut of the Seychelles." For a report of a paper on this subject, subsequently read before the Botanical Society of London, see *Phytol.* 463; the following are additional particulars. The part of the trunk immediately above the ground forms an inverted cone, the apex of which is of an hemispherical form, with a great number of cord-like roots spreading from it in all directions, and remaining long after the destruction of the plant to which they belonged. Where the trees have disappeared from clearings, by burning or otherwise, a black circle on the surface indicates their former site. This circle is the base of the cone before mentioned, which now forms a huge bowl, often filled with decayed vegetable matter. On removing this, the interior of the bowl is found to be pierced by a number of holes, each large enough to admit the end of the fore finger. These holes are the openings of the compact, sonorous and brittle tubes into which the roots have been converted by the decay of their internal substance. Mr. Clark states that the leaves are so firmly attached to the trunk, that a man may seat himself at the end of one with perfect safety. The fibres of the leaflets are very strong and arranged in three layers, the central one being disposed transversely, the others longitudinally; in

* From various causes we are sadly behind with our reports of the Linnean Society; we hope to bring up arrears in the present and next number.—*Ed.*

consequence of this arrangement, their tissue, when divested of the parenchyma, resembles coarse book muslin. Both male and female spadix are stated to pass through a fissure in the base of the accompanying leaf-stalk. The drupe is fifteen inches in length, about three feet in circumference, and weighs from thirty to forty pounds; as many as seven well-formed drupes are sometimes seen on a single spadix. The fecundation is occasionally imperfect, and then the ovary expands and lengthens, but does not assume the usual form, and at the end of two or three years it falls off. A female plant at Mahé flowered for several years without producing fruit, owing to the absence of a male plant. In 1833, a male flower was procured from an estate a few miles distant, and suspended in the tree; about two months afterwards one of the buds expanded, and the mature fruit fell from the tree at the end of 1841.

November 1.—R. Brown, Esq., V.P., in the chair.

Jonathan Pereira, M.D., F.L.S., presented specimens of the different varieties of Ceylon, Malabar and Java cardamoms, &c.

Read, "A Notice of the African Grain called Fundi or Fundungi." By Robert Clarke, Esq., Senior Assistant-Surgeon to the Colony of Sierra Leone. This grain is about the size of mignonette-seed, and is said to be cultivated in the village of Kissy and the neighbourhood of Waterloo, by individuals of the Soosoo, Foulah, Bassa and Joloff nations, by whom it is called "hungry rice." Mr. Clarke describes the mode of cultivation, and the various methods of preparing the grain for food; and he is of opinion that if imported into Europe, it might prove a valuable addition to the list of light farinaceous articles of food in use among the delicate or convalescent.

Specimens of the grass which accompanied Mr. Clarke's communication had been examined by Mr. Kippist, Libr. L.S., who added some observations on its botanical characters. It is slender, with digitate spikes, and has much of the habit of *Digitaria*, but on account of the absence of the small outer glume existing in that genus, it must be referred to *Paspalum*. Mr. Kippist regards it as an undescribed species, although specimens, collected by Afzelius at Sierra Leone, are in the herbaria of Sir J. E. Smith and Sir Joseph Banks. Mr. Kippist names it *P. exile*, and gives the characters.

Read also a letter from N. B. Ward, Esq. F.L.S., relative to the introduction of the *Musa Cavendishii* into the Navigators' Islands, (*Phytol.* 527).

November 15.—E. Forster, Esq., V.P., in the chair.

Mr. T. S. Ralph, A.L.S., presented numerous fruits and seeds collected in the neighbourhood of Aurungabad.

Read, a note "On the permanent varieties of *Papaver orientale*, L." By T. Forster, M.B., F.L.S., &c. The author states that ever since the introduction of *Papaver bracteatum*, *Lindl.* into England, he has regarded it as a permanent variety of *P. orientale*. This name he retains for the species, both as being the older one, and applicable to all the varieties; of which the four following he considers as permanent:—

1. *P. orientale bracteatum*; seeds always perfect.
2. *P. orientale præcox*, the "Monkey Poppy" of the old gardeners; flowering in May with the preceding, seeds always sterile.
3. *P. orientale serotinum*; flowering in June, seeds always imperfect.
4. *P. orientale, capsulâ et floribus longioribus*; flowers in May, seeds sometimes perfect. Only met with in continental gardens. Dr. Forster states that he has been assured in the South of Europe, that *P. orientale bracteatum* yields the best opium, and that in the largest quantity; and as this plant seeds freely and suits the English soil, he thinks it might be advantageously substituted for *P. somniferum*.

Read also, a note "On *Secale cornutum*, the Ergot of Rye:" and "On a Species

of *Asplenium* related to *A. Trichomanes*, L." By A. Haro, M.D., of Metz. In the latter communication Dr. Haro calls attention to a fern discovered by himself in the well of an old castle. The well is large, four-cornered, and with a square window at the top in one of the sides. The wall opposite to the window is covered with the fern, which lies flat upon the stones, to which the fronds are attached throughout their whole length by slender roots, and adhere so firmly that it is difficult to remove them, even with a knife. A professor, to whom Dr. Haro submitted the plant, regarded it as a new species, and has named it *A. Harovii*: he has also furnished descriptive characters of the new plant, as well as of the three allied species, *A. Trichomanes*, *viride* and *Petrarchæ*. We give the characters of *A. Harovii*, which is placed between *A. Trichomanes* and *viride*.

A. Harovii. Frond *decumbent*, fixed to stones by very slender fibrils, *glabrous*, unequally pinnate; stipes blackish-varnished, furnished above with an indistinct membrane, running down on each side from the insertion of the pinnules, (*appendiculatus*); middle pinnules *hastato-rhomboid*, *three-lobed*, upper pinnules oblong, obliquely attenuated or wedge-shaped at the base, unequally pinnatifid, all obtuse but *acutely toothed*.

December 6.—E. Forster, Esq., V.P., in the chair.

Read, a portion of "An Essay on the Distribution, Vitality, Structure, Modes of Growth and Reproduction, and Uses, of the Fresh-water *Conservæ*." By Arthur Hill Hassall, Esq.

December 20.—E. Forster, Esq., V.P., in the chair.

A. H. Hassall, Esq. exhibited an apple in which decay had been artificially induced by inoculating it with decayed matter from another apple containing filaments of *Entophytal Fungi*.

Read, a continuation of Mr. Hassall's memoir on the fresh-water *Conservæ*.

Read also, "Some further Observations on the Nature of the Ergot of Grasses." By Edwin John Quekett, Esq., F.L.S.

BOTANICAL SOCIETY OF LONDON.

February 17, 1843. — J. E. Gray, Esq., F.R.S. &c., President, in the chair. The following donations were announced. British plants from Dr. Streeten, and foreign plants from Mr. Samuel Simpson. Donations to the library were announced from Mr. H. C. Watson and Mr. E. Newman. Mr. T. Clarke, jun. presented specimens of a very large variety of *Lastræa Filix-mas*, found by him at King's Cliff Valley, near Bridgewater.

Mr. G. H. K. Thwaites read a paper, being a Notice of the discovery of *Grimmia orbicularis*, a moss new to Britain, which was found by him upon St. Vincent's Rocks, Bristol. The foliage is not distinguishable from that of *Grimmia pulvinata*; the capsule however is abundantly distinct, being globose instead of ovate, and having a conical instead of a rostrate operculum. Both species grow upon St. Vincent's Rocks, and are sometimes intermingled, but each retains its peculiar characteristics, so that *Grimmia orbicularis* cannot be considered a variety of *G. pulvinata*. Specimens of the former species accompanied the paper.

Read also, a paper from Mr. T. Beesley, being "Additions to the List of Plants found in the neighbourhood of Banbury, Oxfordshire, in 1842."

March 17. — J. E. Gray, Esq., F.R.S., &c., President, in the chair. Mr. David Moore, of the Royal Botanic Garden, Dublin, presented a specimen of *Carex paradoxa*.

(Willd.) found by him in Ladiston Woods, Mullingar, Westmeath, Ireland, in July last. Mr. Robert Castle presented a specimen of *Araucaria excelsa*. Col. Jackson presented an interesting collection of foreign plants. The President presented the 1st fasciculus of Leefe's British Willows: and British plants had been received from Mr. T. B. Hall, Dr. Ayres, Mr. Henfrey and Miss Beaver. Donations to the library were announced from Professor Meneghini, Mr. W. M. Chatterley and the American Philosophical Society.

Mr. Arthur Henfrey read a paper "On the British Species of *Statice*." * Specimens of British and foreign species in the Society's collection were exhibited.—*G.E.D.*

MICROSCOPICAL SOCIETY OF LONDON.

March 15, 1843.—George Loddiges, Esq. in the chair.

Read, a paper from the Rev. J. B. Reade, entitled "Microscopic Chemistry, No. II." The paper was headed "On the existence of Ammonia in Vegetable Substances described as containing Nitrogen." After stating that very minute portions of sulphate of lime in snow may be rendered manifest by means of the microscope, and also that the almost inappreciable quantity of ammonia mentioned by Liebig as existing in the atmosphere would be capable of detection by the same means; the author proceeded to show the existence of ammonia in the seeds of plants, which he stated may be rendered apparent by burning the common field bean in a spirit-lamp, until flame and smoke entirely cease. The gas given off is to be received on slips of glass moistened with pure hydrochloric acid. The salt thus obtained he describes as a salt of ammonia, which he considers to be produced by the decomposition of an ammoniacal salt previously existing in the bean, and not by the destructive distillation of an organic body in contact with the atmosphere. This presence of ammonia the author looks upon as proved in various ways:—1. By the before-mentioned production of crystals of hydrochlorate of ammonia on slips of glass, when the gas from the bean is exposed to the vapour of volatile hydrochloric acid. 2. By the odour of this gas when received into an eight or ten ounce bottle, being clearly that of ammonia. 3. By the production of crystals of bi-tartrate of ammonia on the addition of a little tartaric acid to the hydrochlorate. 4. By the action of the supposed ammoniacal gas on test-papers, furnishing a proof of the presence of volatile alkali. And lastly, by an experiment in which he sublimed over hydrochlorate of ammonia, in an unchanged state, into a drop of distilled water. The acid with which the ammonia is combined he supposes in some instances at least to be silicic acid. In answer to an objection made to these views, that the ammonia is chemically formed by the destructive distillation of the vegetable compound in contact with the atmosphere, the author adduced what, in his opinion, must be considered both negative and positive evidence: the former being founded on the known reluctance of nitrogen to enter into combination with all other substances; the latter principally from the evolution of ammonia from bean-meal, heated in a glass tube with the mouth inserted into hydrochloric acid, thus preventing contact with the atmosphere. The author concluded by describing a method of readily obtaining as a standard of measurement, a minute quantity of hydrochlorate of ammonia, equal to about the $\frac{1}{10000}$ of a grain.

* This paper will most probably appear in our next number.—*Ed.*

THE PHYTOLOGIST.

No. XXIV.

MAY, MDCCCXLIII.

PRICE 1s.

ART. CXXXVI.—*Description of a Species and Variety of the Genus Statice, known to British Botanists as the Limonium Anglicum minus of Ray's Synopsis.* By ARTHUR HENFREY, Esq., A.L.S., M. Mic. Soc., Curator to the Botanical Society of London.



1. *Statice rariflora*, Drejér, half the natural size. 2. Scales of the involucre, magnified. 3. Calyx, ditto. 4. Petal with stamen, ditto. 5. Leaf of *Statice Limonium*, β . 6. Calyx, magnified. The figures exhibit the relative sizes of the calyces, being taken from plants of equal size.

THE following descriptions were read before the Botanical Society of London. At that time I imagined the first of these plants to be undescribed; but by the kindness of Mr. H. C. Watson, who suggested the reference, I have been able to identify it with Drejer's description of *Statice rariflora*.

STATICE rariflora, Drejer.

Caule erecto, angulare, ramoso, spicis diffusis, elongatis; floribus paucis, distantibus, attenuatis; calyce angusto, implicato, lobis 5, acutissimis, petalis angustissimis; foliis parvis, spathulato-lanceolatis, mucronatisque (sub-triplinervis). *S. rariflora*, Drejer, *Flora Excursoria Hafniensis*, 121. *Limonium Anglicum minus*, Ray, *Syn.* 202. *S. Limonium*, γ. Sm. *Fl. Brit.* i. 341.

Scap 8—10 inches high, erect, somewhat angular, slightly furrowed, with few branches; spikes diffuse, attenuate, few-flowered; flowers distant, small, elongated, calyx with a long narrow tube, and five very acute lobes (occasionally with intermediate teeth), not plaited, petals narrow; leaves small, spathulato-lanceolate, obscurely triple-nerved, mucronate; footstalks bordered.

I have drawn up the above description from a specimen presented to the Botanical Society of London, by Mr. W. L. Notcutt, who gathered it at Fareham.* It is a much more delicate-looking plant than any other British *Statice* I have seen, and has a very peculiar starved appearance. The leaves are small and coriaceous, the only very distinct vein being the central one, which is very prominent at the back. The most characteristic point I can find is the form of the calyx, which, as will be seen on a reference to the figures (3 and 6 at page 561), differs materially from that of *S. Limonium*; and I have ventured, from this circumstance, strengthened by the form of the leaves and the general character of the plant, to continue Drejer's specific distinction. As the 'Flora Hafniensis' is a rather uncommon book in this country, it may not be amiss to give here the extract containing the description of this plant: for this also I am indebted to Mr. Watson.

" 349. *St. rariflora*: ramis inflorescentiæ adrectis dissitifloris, bract. oblique truncatis muticis exteriore latiore inferiorem amplectente, omn. florigeris. *Limonium anglicum minus*, flor. in spicis rarius sitis, Ray, *Syn.* 202. *Lim. humile*, Mill Ed. germ.

* See Mr. Notcutt's notes, *Phytol.* 429 and 492.--*Ed.*

"Omni parte tenuior, minus ramosa, in ramis exterior. fl. unilaterales solitarii interdum gemini, in interioribus in axi flexuosæ distinctius alterni. Fol. juniora lanceol. in mucronem attenuata, adultiora obovato-spathulata mucrone (elongato recto v. brevissime curvato) sub apice emergente. Panic. deflorata ob bract. coloratas max. membranac. fusco-variegata. Huc St. Lim. Valensienes, Fr. Mant. p. 10 (ex specim. ad J. Agardh datis) quæ sola magnitudine a nostra differt. 7—8. 2/. In littoribus.—P. 121.

Mr. Notcutt has been good enough to furnish me with the following particulars respecting the habitat, which would tend to disprove the idea of its being a starved specimen of *S. Limonium*. "Found in salt marshes on both sides of the town," (Fareham). "On the side between Fareham and Portchester the common form of *S. Limonium* grows in profusion, but I could not perceive any specimens which presented any intermediate grade between my plant and it, though they both grow near each other."

STATICE *Limonium*, Linn., var. β . *longifolia*.

Spicis elongatis, floribus minus confertis; foliis lanceolatis, angustis, acuminatisque, submucronatis. *Limonium Anglicum minus*, Ray, Syn. 202. *Statice Limonium* γ . Sm. Fl. Brit. i. 341.

Spikes elongated, flowers more distant, leaves lanceolate, narrow, sometimes linear-lanceolate (young leaves occasionally resembling the normal form in *S. Limonium*), generally with long bordered foot-stalks and a weak mucro, formed by the cartilaginous margins of the leaves.

This description is taken from a number of specimens in the herbarium of the Botanical Society of London, from two localities in Scotland; one being St. Mary's Isle (the specimens are from the Botanical Society of Edinburgh); and the other Garlieston, Wigtonshire, (the specimens collected by Professor Balfour and communicated by Mr. Watson).

The calyx of this variety exactly resembles that of *Statice Limonium*, α .; and I have examined a number of specimens presenting every form of leaf between elliptic and linear-lanceolate, but very few approach to spathulate; the spikes are very numerous, bearing many flowers, but are elongated, and each flower is perfectly distinct. On this account the variety appears somewhat like *S. rariflora*, but is distinguished by the shape and relative size of the calyx and the form of the leaves. The whole plant, when dried, has a reddish brown tint.

London, March 25, 1843.

ARTHUR HENFREY.

ART. CXXXVII. — *Sketch of Botanical Rambles in the Vicinity of Bristol.* By LEO. H. GRINDON, Esq.

THE sketches of botanical rambles which have occasionally appeared in the pleasant pages of 'The Phytologist,' embolden me to offer you the following notes of two or three excursions made last summer in the vicinity of Bristol, a part of our island well known to be remarkably rich in rare and beautiful plants.

The lovely morning of July 3rd, 1842, found me approaching my native city by the Gloucester road; and although the luxuriant and picturesque scenery upon either side afforded of itself sufficient delight and employment for the eye, I found time to remark profusion of *Galium Mollugo*, *Pastinaca sativa*, *Malva sylvestris* and *Melilotus officinalis* by the way-sides, while the hedges wore a thick mantle of our elegant southern climber, *Clematis Vitalba*. Here and there was a field literally purple with the bloom of the cultivated teasel, *Dipsacus Fullonum*.

Early in the forenoon of the following day (Monday) I rambled away towards Horfield. In the suburb of the town was abundance of *Mercurialis annua* (a very common weed), *Diploaxis muralis*, *Coronopus Ruellii*, *Plantago media* and *Convolvulus arvensis*; the hedges being formed chiefly of *Rubus fruticosus* and *Cornus sanguinea*. A little further in the country *Centaurea Jacea*, *Agrimonia Eupatoria*, *Hypericum hirsutum* and *Hordeum pratense* became plentiful. The hedges were here completely enveloped in luxuriant *Tamus communis* and *Bryonia dioica*, occasionally relieved by a mass of wild roses, (*R. canina* and *systyla*). *Viburnum Lantana* and *Opulus* formed a considerable portion of many of the fences, as we left the smoke of the town behind us, and these, together with the *Cornus*, were in green fruit. At Ashley was plenty of *Rhamnus catharticus* in the hedges, likewise in green fruit. *Asplenium Ruta-muraria* was common upon the old walls, and *Hordeum murinum* by the road-sides. On Brandon hill, in the afternoon of this day, I noticed *Plantago Coronopus*, β . *nanus*, in fruit, but was too late for *Trifolium subterraneum*, which likewise abounds there. The evening was devoted to a walk to Redland: on the walls near the green, *Hieracium murorum* and *Linaria Cymbalaria* were blooming in great luxuriance; *Ceterach officinarum* was also in perfection. I visited the *Lamium longiflorum** habitat, but, as anticipated, found very little remaining in flower. This is a most beau-

* *L. album*, β . Hooker, Br. Fl. ed. 4; *L. maculatum*, β . *lævigatum*, Ed. Cat. ?

tiful plant, perfectly distinct from *L. album*, and from all the cultivated states of *L. maculatum* I have ever seen. It occurs with both pink and white flowers.

The afternoon of Tuesday the 5th found me again at Redland, whither I went for the purpose of collecting *Bromus erectus*, which is the principal grass in many meadows both here and at Horfield: but the scythe had swept all away. To make amends, and not go home empty handed, I pursued my walk until my vasculum was filled with *Acer campestre* in fruit, *Poa compressa*, *Festuca myurus* and *Arenaria serpyllifolia*.

On Wednesday, July 6, we made an excursion to Clevedon, a lovely and highly picturesque watering place, twelve miles S.W. of Bristol. Our road lay first through Ashton, where, on the old shaded wall ascending the hill towards Failand, six species of ferns at once presented themselves;—*Ceterach officinarum*, *Asplenium Adiantum-nigrum*, *A. Trichomanes*, *A. Ruta-muraria*, *Scolopendrium vulgare* and *Polypodium vulgare*: *Lastræa Filix-mas* and *Pteris Aquilina* grow upon the bank above, only a few feet distant. It was upon this identical wall that, ten years ago, I first gathered them; and although the interest then excited by their novelty could not be renewed to me, their original beauty was still present, and filled my mind with a thousand pleasant memories.

Further up the hill, *Cnicus acaulis* β . *caulescens* was growing among the gravel by the road-side. Thenceforward, until we approached Tickenham, nothing remarkable presented itself, that is, nothing of *botanical* interest, a circumstance which none could regret, when compensated for by so glorious a prospect as that here enjoyed. On descending the hill to the village of Tickenham, I found *Linum angustifolium* in flower and fruit, *Phleum arenarium*, *Verbena officinalis*, and *Salvia verbenaca* in fruit; while the high banks, even down to the very carriage-way, were adorned with a profusion of flowers such as I have never beheld, except in that one favoured spot. *Papaver Rhœas*, *Cichorium Intybus*, *Galium verum*, *Malva moschata*, *M. sylvestris*, wild roses, and a multitude of others no less showy, blended their bright hues beneath the unclouded sun more beautifully than pen can describe. Thence, all the way to Clevedon, the old walls and dry hedge-banks were clothed with an infinite quantity of *Ceterach officinarum* and *Cotyledon Umbilicus*; the handsome branched variety of the latter being equally abundant with the ordinary simple-stemmed state of the plant. Here and there in the hedges *Campanula Trachelium* showed itself; and occasionally, on walls, *Sedum acre*, *S.*

dasyphyllum, *S. reflexum* and *Valeriana rubra*. Near the Bristol Hotel was *Torilis nodosa*, very large.

We reached the shore of the Bristol Channel about mid-day. For a considerable distance the coast is here very precipitous and romantic, being formed of black, uncouth masses of rock, which appear to have fallen into their present position through the undermining influence of the sea. Inland the hills are steep, and, on their seaward slopes, comparatively barren, affording little besides pasturage for sheep. *Filago germanica* was, however, abundant, and in a little natural shrubbery of furze and brambles, I found *Senecio sylvaticus* and *Calamagrostis Epigejos*. The path winds along the extreme edge of the cliffs, forming, as it were, the line of demarcation between earth and the oceanic territory. Extending from the path down to high-water mark, except where interrupted by the rocks, is a steep grassy bank, abounding with beautiful flowers. Here I gathered *Iris fetidissima*, *Orchis pyramidalis* in profusion, *Orobanche minor*, *Euphorbia amygdaloides* in fruit, *Chlora perfoliata* in profusion, *Silene maritima*, *Festuca elatior*, *Scolopendrium vulgare*, *Daucus Carota*, and many others. The vegetation by the sides of the path consists, in a great measure, of rather stunted *Anthyllis Vulneraria*. Near Walton, the rocks are less rugged, and allow of walking upon and between them. Here it was that in a low curious cave I met with *Asplenium marinum*, being the first time I had ever seen living plants. Some of the finest specimens were growing many yards from the entrance of the cave, where little light could enter, and so shut in by the sloping roof, that I had to creep till I was almost prostrate before they were accessible. In the crevices of the rocks was abundance of *Thrincia hirta*, and of a curious and striking variety of *Plantago Coronopus*, having succulent, densely hairy leaves, and exceedingly numerous flower-scapes. Further on, towards Portishead, *Hypericum Androsæmum* was in bloom, still retaining the ripe fruit of last year. A few diminutive specimens of *Samolus Valerandi* were visible in a little cave; and by the side of a fresh-water spring, which bubbles forth from amid the bosom of the rocks, *Schœnus nigricans*, brown and muddy from the tide washing over it. After collecting these, together with some shells and specimens of the different *Fuci*, with which the rocks are thickly tapestried, we returned to Bristol; and though the *botanical* value of the day's gatherings was not of the very first order, the delightful influences and associations under which they were collected have given them a deep and unfading interest.

During the 7th and 8th of July torrents of rain prevented all bota-

nizing. Saturday the 9th was little better, but we then lost all patience, defied the weather, and sallied forth for the purpose of exploring Leigh woods. On the banks of the Avon, near Rownham, *Trifolium fragiferum* was in flower and fruit abundantly. We likewise met with *Cochlearia anglica*, *Plantago maritima*, *Scirpus maritimus*, *Apium graveolens*, &c. It was desperately wet in the woods, and after a succession of shower-baths from above, and drenchings from around and below, we were glad to retreat, in possession, however, of luxuriantly beautiful *Cystopteris fragilis*, *Polypodium vulgare* (eighteen inches long), *Asplenium Trichomanes*, *Quercus sessiliflora*, *Pyrus Aria* in green fruit, *Tilia parvifolia*, *Acer campestre* in green fruit, &c.

Tuesday the 12th was brilliantly fine, and being the last day of my stay at Bristol, it was spent in part upon St. Vincent's Rocks; but the fatigue of a boisterous voyage to South Wales the previous day had quite unnerved me, and I was only tempted to summon up my remaining strength by the prospect of obtaining *Orobanche barbata*, *Veronica hybrida*, *Rubia peregrina*, *Centaurea Scabiosa*, *Petroselinum sativum*, *Bromus diandrus*, &c.; with regard to all which, and many others of no less interest, I perfectly succeeded. And thus ended my week's botanizing at Bristol.

LEO. H. GRINDON.

Manchester, March 13, 1843.

ART. CXXXVIII.—*Plants observed in the neighbourhood of Ludlow, Shropshire.* By FREDERICK WESTCOTT, Esq., A.L.S., &c.

Spring St., Edgbaston, December 3, 1842.

SIR,

I SEND you an enumeration of plants which I gathered or observed during a short stay at Ludlow in October last. I regret that I was too late for the grasses, Carices and Orchideæ, and had no means of ascertaining the Fungi, which appear to be numerous: all these deficiencies I hope to supply next summer, when it is probable I may revisit the neighbourhood.

I send the list, not because it will be found to contain any very remarkable plants, but in the hope that persons in the neighbourhood may be induced to pay more attention to the Botany of their district; for I have no doubt that many interesting discoveries may be made there, especially among the mosses, the lichens and the Fungi. The Cleve Hills, more particularly, would be found a rich locality.

Hoping that some one on the spot will follow up this subject in good earnest, and communicate the result to the interesting pages of your journal,

I am, Sir,

Yours very truly,

FRED. WESTCOTT.

To the Editor of 'The Phytologist.'

- | | |
|--|---|
| Ranunculus acris, bulbosus, and repens,
banks of the castle walk | Pimpinella Saxifraga |
| — fluvialis, abundant in the Teme | Chærophyllum temulum |
| — hederaceus | Conium maculatum |
| Caltha palustris | Ægopodium Podagraria |
| Trollius europæus | Plantago major, media and lanceolata |
| Aquilegia vulgaris, ruins of Richard's castle | Acer campestre |
| Berberis vulgaris, Ludford | Hypericum pulchrum, humifusum, and
hirsutum, banks of castle walk |
| Diploxys tenuifolia and Cheiranthus
Cheiri, rocks about the castle and
banks of the castle-walk | — perforatum, <i>β. angustifolium</i> , walls
of Ludlow castle; rocks of Whit-
cliffe; hedge-bank near the Angel
bank, Clee-hills, (Phytol. 427 and
461). |
| Cardamine hirsuta | Geum urbanum |
| Hesperis inodora, ruins within the castle | Agrimonia Eupatoria |
| Sinapis nigra, banks of the castle walk | Potentilla Fragariastrum, reptans and
anserina |
| Erysimum Alliaria | Prunus spinosa |
| Montia fontana | Fragaria vesca, ruins of the castle and
Whitcliffe coppice |
| Cerastium vulgatum and arvense | Rosa tomentosa, canina, and canina <i>β.</i>
<i>sarmentacea</i> |
| Arenaria serpyllifolia, walls about the cas. | Rubus fruticosus, cæsius, Idæus, rhamni-
folius & carpinifolius, Whitcliffe
coppice and hedges |
| Sagina procumbens | Ribes Grossularia |
| Stellaria media, uliginosa and holostea | Viola canina, odorata, palustris and lutea.
The last grows in great abundance
in moist places on the top of the
Clee hills |
| Lychnis dioica and Flos-cuculi | Oxalis Acetosella |
| Dianthus plumarius, on the walls of the
castle, on the right hand side on
entering the door, by the keep. | Galium cruciatum, saxatile & uliginosum |
| Malva sylvestris and moschata | Linum catharticum, Whitcliffe |
| Geranium robertianum, molle, dissectum
and lucidum. The last is abun-
dant on the walls of the castle,
where its shining leaves have a
very pleasing appearance. | Cotyledon Umbilicus, Ludford |
| Epilobium montanum and palustre | Sedum reflexum and dasphyllum, rocks
of castle walk |
| Circæa Lutetiana, banks of the Teme | — acre, on the walls |
| Dipsacus sylvestris, hedge near Ludlow | — rupestre, Clee hills |
| Viburnum Lantana | — Telephium, var. <i>alpinum</i> . In habit
this plant is nearly prostrate, slen- |
| Hedera Helix and Sambucus nigra, about
the castle | |
| Lonicera Periclymenum, Whitcliff coppice | |
| Cornus sanguinea | |
| Anthriscus sylvestris | |
| Bunium flexuosum | |

der, and weak in all its parts. The leaves are also frequently opposite, thinner, and of a reddish green colour; it is also destitute of the leafy bracteal appendages which are present on *Sedum Telephium*. It was gathered by Mr. Cameron and myself on the Clee hills, in 1839, when we considered that its different appearance arose from growing at an elevation of from 14—15,000 feet above the level of the sea; it has however been cultivated in the Birmingham Botanic Garden, for two years, next to the true *S. Telephium*, without suffering the slightest change, and the difference between the two plants remains distinctly marked.

Saxifraga tridactylites and *granulata*, on the banks of the castle walk

— *hypnoides*, on the stones of that part of the Clee hills called the Hoar edge, abundant

Chrysosplenium oppositifolium, abundant among the stones under the dripping rocks of Whitcliffe

Trifolium arvense, *pratense* and *repens*, banks of the castle walk

Medicago lupulina, walls of the Castle

Ulex europæus, Whitcliffe

Lotus corniculatus and *major*, ditto

Spartium Scoparium, Whitcliffe coppice

Vicia sylvatica, ditto

Euonymus europæus

Achillæa Millefolium

Apargia autumnalis and *hirta*

Sonchus oleraceus

Cirsium lanceolatum

Cnicus palustris

Leontodon Taraxacum

Tanacetum vulgare

Hieracium Pilosella and *murorum*

Carlina vulgaris

Pyrethrum Parthenium

Senecio Jacobæa

Petasites vulgaris

Conyza squarrosa

Eupatorium Cannabinum

Lapsana communis

Prenanthes muralis

Tussilago Farfara

Lappa glabra

Artemisia vulgaris

Erigeron acris

Campanula rotundifolia

Jasione montana, bank of the castle walk
and Whitcliffe

Vaccinium Myrtillus, Whitcliffe coppice

Pyrola media, ditto

Glechoma hederacea

Ballota foetida

Thymus Serpyllum

Galeopsis Tetrahit

Teucrium Scorodonia

Stachys sylvatica

— *Betonica*, Whitcliffe coppice

Prunella vulgaris

Origanum vulgare, castle walk

Melissa Calamintha, banks of the castle
walk, near Mortimer's tower

Primula veris and *vulgaris*

Lysimachia nemorum

Lathræa squamaria, near Steventon

Scrophularia nodosa and *aquatica*

Bartsia Odontites

Digitalis purpurea, Whitcliffe

Verbascum Thapsus, ditto

Veronica polita, *Chamædrys* and *officinalis*,
banks of the castle walk

Linaria vulgaris, ditto

— *Cymbalaria*, walls about the town

Melampyrum pratense, Whitcliffe coppice

Verbena officinalis, banks of castle walk

Myosotis palustris

Lithospermum officinale, abundant on the
banks of the castle walk

Rumex Acetosa and *sanguineus*, var. with
green veins, ditto

Polygonum Bistorta, *Persicaria* and *Hydropiper*

Parietaria officinalis, walls about Ludlow

Urtica dioica

Mercurialis perennis

Euphorbia amygdaloides and *helioscopia*,
abundant in Whitcliffe coppice

- Typha latifolia*, Oakley park pool
Sparganium ramosum, banks of the Teme
Iris Pseudacorus, ditto, abundant
Epipactis latifolia, Whitcliffe, in great plenty, and very fine, some specimens being from 2 to 3 feet high
Spiranthes autumnalis, fields adjoining Ludlow
Listera ovata
Juncus conglomeratus, Whitcliffe coppice
Luzula pilosa, ditto
Butomus umbellatus, in the river between the new bridge and the Mill-street weir
Aira flexuosa
Milium effusum, Whitcliffe coppice
Holcus mollis, common
Bromus sterilis, walls about the castle, and castle ditch
Dicranum scoparium, Whitcliffe coppice
 — *heteromallum* & *bryoides*, moist bks.
Bryum ventricosum, rks. under Whitcliffe
 — *capillare*, rocks of castle walk
 — *palustre*
 — *hornum*, Whitcliffe coppice
 — *pyriforme*, walls about castle-walk
Hypnum stellatum, *splendens*, *cuspidatum* and *purum*, Whitcliffe
 — *mysuroides*, *complanatum* and *denticulatum*, Whitcliffe coppice
 — *molluscum*, on the stones among the ruins of the castle
 — *triquetrum*, Whitcliffe
Hypnum prælongum & *confertum*, banks
Bartramia pomiformis
 — *fontana*. This moss grows in great abundance among the wet rocks under Whitcliffe, where I found it in a beautiful state of fructification, which to me is of rare occurrence
Gymnostomum microstomum
Grimmia pulvinata, Titterstone
Orthotrichum crispum, upon the trees in Whitcliffe coppice, abundant
Polytrichum alpinum, *undulatum* and *commune*, Whitcliffe
Sphagnum obtusifolium and *acutifolium*, wet places near the river
Marchantia polymorpha
Jungermannia asplenioides
Borreria ciliaris, trees in Whitcliffe coppice
Cetraria glauca
Parmelia parietina
Peltidea canina
Scyphophorus pyxidatus
Cladonia rangiferina [the stones
Sphærophoron coralloides, Titterstone, on
Lecanora Hæmatomma, Titterstone
Enteromorpha intestinalis, abundant in the river, below the bridge
Protonema Orthotrichi, on trees in Whitcliffe coppice, with *Orthotrichum crispum*
Boletus luteus
Agaricus pratensis, *campestris* & *procerus*

ART. CXXXIX.—*Notice of 'A Visit to the Australian Colonies. By JAMES BACKHOUSE.'* London: Hamilton, Adams, & Co. 1843.

(Continued from p. 553)

During his stay at the Hampshire hills, J. Backhouse made frequent excursions in the neighbouring country: in one of these he noticed *Telopea truncata*, or Van Diemen's Land tulip-tree, a laurel-like shrub bearing heads, four inches across, of brilliant, scarlet, wiry flowers; an upright *Phebalium*, with silvery leaves and small white flowers; and a white-flowered sorrel — *Oxalis lactea*; a *Telopea*, the

flowers of which abound in honey, which our author found it easy to extract by means of the slender tubular stems of grass ; and a shrubby Aster, with toothed leaves, so profusely loaded with pure white blossoms as to bend gracefully in all directions. We now quote a passage that will give some idea of the denseness of the forests in this island.

“ On an old road called the Lopham-road, a few miles from the Bay, we measured some stringy-bark trees, taking their circumference at about 5 feet from the ground. One of these, which was rather hollow at the bottom, and broken at the top, was 49 feet round ; another that was solid, and supposed to be 200 feet high, was 41 feet round ; and a third, supposed to be 250 feet high, was $55\frac{1}{2}$ feet round. As this tree spread much at the base, it would be nearly 70 feet in circumference at the surface of the ground. My companions spoke to each other, when at the opposite side of this tree to myself, and their voices sounded so distant that I concluded they had inadvertently left me, to see some other object, and immediately called to them. They, in answer, remarked the distant sound of my voice, and asked if I were behind the tree ! When the road through this forest was forming, a man, who had only about 200 yards to go, from one company of the work-people to another, lost himself : he called, and was repeatedly answered ; but getting further astray, his voice became more indistinct, till it ceased to be heard, and he perished. The largest trees do not always carry up their width in proportion to their height, but many that are mere spars are 200 feet high.

“ The following measurement and enumeration of trees growing on two separate acres of ground in the Emu Bay forest, made by the late Henry Hellyer, the Surveyor to the V. D. Land Company, may give some idea of its density.

“ FIRST ACRE.

500 Trees under	12 inches in girth.
992 do. ...	1 to 2 feet do.
716 do. ...	2 to 3 do. do.
56 do. ...	3 to 6 do. do.
20 do. ...	6 to 12 do. do.
12 do. ...	12 to 21 do. do.
4 do. ...	30 do. do.
84 Tree Ferns.	
2,384 Total.	

SECOND ACRE.

704 Trees under	12 inches in girth.
880 do. ...	1 to 2 feet do.
148 do. ...	2 to 3 do. do.
56 do. ...	3 to 6 do. do.
32 do. ...	6 to 12 do. do.
28 do. ...	12 to 21 do. do.
8 do. ...	21 to 30 do. do.
8 do. ...	30 feet and upwards.
112 Tree Ferns.	

1,976 Total.”—p. 115.

The measurement of individual trees seems really enormous. We have a prostrate tree measuring 200 feet to the first branch; a second cut into rails each 180 feet long; a third *so large that it could not be cut into lengths for splitting*, and a shed had been erected against it, the tree serving for a back. The following dimensions are given of ten standing trees, which occurred within half a mile: their circumference was taken at four feet from the ground.

No. 1,—45 feet; No. 2,— $37\frac{1}{2}$; No. 3,—35; No. 4,—38; No. 5,—28; No. 6,—30; No. 7,—32; No. 8,—55; No. 9,— $40\frac{1}{2}$; No. 10,—48.

On the banks of the Emu river was a laurel-like shrub of great beauty, with clusters of white blossoms half an inch across (*Anoptera glandulosus*). In the same vicinity occur three edible plants; the first a fungus which grows on the myrtle, and is known in the colony by the name of "punk:" the second is also a fungus, produced in clusters from swollen portions of the branches of the same shrub, and varying in size from that of a nut to that of a walnut; its taste is like cold cow-heel: the third is "*Gastrodium sesamoides*, a plant of the orchis tribe, which is brown, leafless, and $1\frac{1}{2}$ foot high, with dingy, whitish, tubular flowers. It grows amongst decaying vegetable matter, and has a root like a series of kidney potatoes, terminating in a branched thick mass of coral-like fibres. It is eaten by the Aborigines, and is sometimes called Native Potato, but the tubers are watery and insipid."

In returning over the island to Hobart Town, there appear to have been but few plants that attracted much notice. In the vicinity of this place a species of *Conospermum*, with narrow strap-shaped leaves and small flowers, was noticed. In October, 1833, the travellers ascended Mount Wellington.

"At the base, sandstone and limestone form low hills; further up, compact argillaceous rock rises into higher hills, which abound in marine fossils. The height of the mountain is 4000 feet. Near the top, basalt shows itself in some places, in columnar cliffs. The trees, for two-thirds of its height, are stringy-bark, white and blue gum, peppermint, &c. A species of *Eucalyptus*, unknown in the lower part of the forest, is frequent at an elevation of 3000 feet. Another is found on the top of the mountain. The different species of *Eucalyptus* are very common, and form at least seven-eighths of the vast forests of Tasmania. In the middle region of the mountain, the climate and soil are humid. The Tasmanian myrtle—*Fagus Cunninghamii*, here forms trees of moderate size; the Australian pepper-tree, — *Tasmania fragrans*, is frequent; the broad-leaved grass-tree—*Richea Dracophylla*, forms a striking object; it is very abundant, and on an average, from ten to fifteen feet high; it is much branched, and has broad, grassy foliage. The branches are terminated by spike-like panicles of white flowers, intermingled with broad, bracteal leaves, tinged with pink. *Culcitium salicifolium*, *Hakea lissosperma*, *Telopea truncata*, *Correa ferruginea*, *Gaultheria hispida*,

Prostanthera lasianthos, *Friesia peduncularis*, and many other shrubs, are met with in the middle region of the mountain. For a considerable part of the way up, we availed ourselves of a path that is nearly obliterated, which was used by the workmen, when laying a watercourse from the breast of the mountain, for the purpose of supplying Hobart Town with water. This path led through a forest of tree-ferns, surmounted by myrtle, &c. Nearer the top, we had to pass a large tract of tumbled basalt. The upper parts of many of the stones were split off, probably by the alternations of frost and heat. A few patches of snow were still remaining.

"The top of the mountain is rather hollow, sloping toward Birches Bay, in the direction of which, a stream of excellent water flows. The ground is swampy, with rocks and stony hills. *Astelia alpina*, *Gleichenia alpina*, *Drosera arcturi*, several remarkable shrubby Asters, a prostrate species of *Leptospermum*, *Exocarpos humifusus*, a dense bushy *Richea*, and several mountain shrubs, of the *Epacris* tribe, are scattered in the swamps, and among the rocks."—p. 159.

In the narrative of a second visit to Flinders Island, in December, we find a more detailed account of the grass-trees than any that has previously been given. Their stems are five to seven feet in height, and as many in circumference; the crest or summit consists of a number of grass-like leaves, three or four feet in length, and from the centre of these rises a single erect flower-spike, varying from five to ten feet in height: this is thickly clothed with hard scales, and small, white, star-like flowers, except for about eighteen inches, at the base, which is bare. The trunks of these grass-trees are charred with continual burnings of the scrub; and abundance of red resin, capable of being used in making sealing-wax and French polish, exudes from them: this resin fills the place left by the decay of the flower-stalk, and is abundant at the base of the stem, protecting this part from excess of moisture. The head of a grass-tree that has not thrown out a flower-stem is pleasant eating, and has a nutty flavour. Accompanying the description is a plate, representing these extraordinary plants.

In May, 1834, our travellers being at Hobart Town, visited a small settlement on the Derwent, called Brown's River, and noticed in their walk *Sprengelia incarnata*, a heath-like shrub, which was in flower in some marshy ground by the way: also *Plagianthus discolor*, one of the *Malvaceæ*, bearing clusters of white blossoms: the species of this genus are called Currijong, in common with others whose bark is sufficiently tenacious for making cordage.

NORFOLK ISLAND.—James Backhouse landed on Norfolk Island in the beginning of March, 1835: he thus describes it.

"Norfolk Island is about seven miles long and four broad. A small portion of its southern side is limestone; to the east of this there is a still smaller portion, of coarse,

siliceous sandstone. The remainder of the island is basaltic, and rises into hills, covered with grass and forest. The highest hill is Mount Pitt, which is on the north side of the island, and about 1,200 feet above the level of the sea. The upper portions of the valleys, and the higher parts of the hills, are covered with wood. The Norfolk Island pine, *Altingia excelsa*, towers a hundred feet above the rest of the forest; it also grows in clumps, and singly, on the grassy parts of the island, to the very verge, where its roots are washed by the sea, in high tides. In figure, this tree resembles the Norway spruce, but the tiers of its branches are more distant. Its appearance is remarkably different, in its native soil, from what it is in the fine collection of trees at Kew; where it nevertheless exhibits many of its striking and beautiful features. — Where the wood of Norfolk Island merges into open grassy valley, a remarkable tree-fern, *Alsophila excelsa*, exhibits its rich crests among the surrounding verdure. The fronds are from seven to twelve feet long; they resemble those of *Aspidium Filix-mas*, and are produced in such a quantity, as to make this noble fern excel the princely palm-tree in beauty. It usually has its root near the course of some rain-stream, but as its trunk rises to fifty feet in height, and its top does not affect the shade, like many of its congeners, it forms a striking object in the landscape.

“Much of the land was formerly cultivated, but this is now overrun with the apple-fruited guava, and the lemon, which were introduced many years ago, when the island was settled, with a view to its becoming a granary to New South Wales. Grape vines, figs, and some other fruits, have also become naturalized. In the garden at Orange Vale, coffee, bananas, guavas, grapes, figs, olives, pomegranates, strawberries, loquats and melons, are cultivated successfully. Apples are also grown here, but they are poor and will not keep.”—p. 251.

“One of the remarkable vegetable productions of this island is *Freycinetia Baueri*-ana, or the N. I. grass-tree. It belongs to the tribe of *Pandaneæ*, or screw pines. Its stem is marked by rings, where the old leaves have fallen off, and is an inch and a half in diameter; it lies on the ground, or climbs like ivy, or winds round the trunks of trees. The branches are crowned with crests of broad, sedge-like leaves. From the centre of these, arise clusters of three or four oblong, red, pulpy fruit, four inches in length, and as much in circumference. When the plant is in flower, the centre leaves are scarlet, giving a splendid appearance to the plant, which sometimes is seen twining round the trunk of the princely tree-fern. The New Zealand flax, *Phorminum tenax*, a large, handsome plant, with sedgy leaves, covers the steep declivities of many parts of this island, particularly at the tops of the cliffs of the coast. It is suffered to grow to waste, except a little that is converted into small nets and cordage, by the prisoners, for their own use. Two New Zealanders were once introduced, to teach the prisoners to prepare it; but their process was so tedious, that the scheme was abandoned.”—p. 256.

On the 16th our traveller rode with Major Anderson to Anson's Bay, on the northern side of the island.

“The road was chiefly through thick forest, overrun with luxuriant climbers. Among them was a *Wistaria*, with pea-flowers, of purple and green, and leaves something like those of the Ash. It hangs in festoons of twenty or thirty feet, from the limbs of the trees that support it. One of the most beautiful climbers of the island is *Ipomœa pendula*, which has handsome fingered foliage, and flowers like those of the major convolvulus, but of a rosy pink, with a darker tube. The remains of two pines,

which were noted for their magnitude, and were blown down in a storm, were lying by the side of the road. These were called 'The Sisters;' they were nearly two hundred feet in height."—p. 258.

The author informs us he frequently took a walk before breakfast, and explored the thickly wooded hills and valleys. On the borders of the woods there was a great variety of beautiful shrubs; among these is —

"The slender jasmine, *Jasminum gracile*, known in England as a delicate greenhouse plant. Here it climbs over the bushes, or with twisted stems, as thick as a man's wrist, reaches the branches of lofty trees, at fifty feet from the ground, and climbs in their heads. In these cases, it has probably grown up with the trees, the lower branches of which have progressively died away, and left the wreathed stems of the jasmine like ropes, hanging from the upper boughs. Scattered on the grassy hills is *Hibiscus* or *Lagunea Patersonii*, which forms a spreading tree of forty feet in height: it is called here the white oak: its leaves are of a whitish green, and its flowers pink, fading to white, the size of a wine-glass. It is perhaps the largest plant known to exist, belonging to the mallow tribe.* In a thick wood, I met with it eighty feet high, and with a trunk sixteen and a half feet round."—p. 258.

On the 28th of March James Backhouse, accompanied by the agricultural superintendant, walked to a stock-station, called Cheeses Gully, on the north side of the island. He here observed two remarkable arches of rock, one of them connecting the columnar basalt of the cliff with a little inaccessible islet, inhabited by gannets and tropic birds. He noticed many of the old timber roads, grown up with the Cape gooseberry, *Physalis edulis*,—

"Which produces abundance of pleasant, small, round fruit, in a bladder-like calyx. This is eaten by the prisoners, who also collect and cook the berries of the black nightshade, *Solanum nigrum*. These berries are accounted virulently poisonous in England, but their character may possibly be changed by the warmer climate of Norfolk Island.

"In the woody gullies, the Norfolk-Island cabbage-tree, *Areca sapida*, abounds. It is a handsome palm, with a trunk about twenty feet in height, and from one and a half to two feet in circumference, green and smooth, with annular scars, left by the fallen leaves. The leaves or fronds form a princely crest, at the top of this elegant column; they are pectinate, or formed like a feather, and are sometimes nineteen feet in length; they vary from nine to fifteen in number. The apex of the trunk is enclosed in the sheathing bases of the leaf-stalks, along with the flower-buds, and young leaves. When the leaves fall they discover double compressed sheaths, pointed at the upper extremity, which split open indiscriminately, on the upper or under side, and fall off, leaving a branched spadix, or flower-stem, which is the colour of ivory, and attached by a broad base to the trunk. The flowers are produced upon this spadix: they are very small, and are succeeded by round seeds, red externally, but white, and

* Except the Baobab, Pl ytol. 433.—*Ed.*

as hard as horn, internally. As the seeds advance towards maturity, the spadix becomes green. The young, unfolded leaves of this cabbage-tree, rise perpendicularly, in the centre of the crest. In this state, they are used for making brooms; those still unprotruded, and remaining enclosed within the sheaths of the older leaves, form a white mass, as thick as a man's arm; they are eaten raw, boiled or pickled. In a raw state, they taste like a nut, and boiled, they resemble artichoke-bottoms. The seeds furnish food for the wood-quest, a large species of pigeon, which has a bronzed head and breast, and is white underneath, and principally slate-coloured on the back and wings. This bird is so unconscious of danger, as to sit till taken by a noose at the end of a stick; when one is shot, another will sometimes remain on the same bough, till itself also is fired at. We measured a Norfolk Island pine, twenty-three feet, and another twenty-seven feet, in circumference. Some of them are nearly two hundred feet high. The timber is not of good quality, but is used in building; it soon perishes when exposed to the weather. This is said to be the case with all the other kinds of wood on the island. Norfolk Island iron-wood, *Olea apetala*, is the only other sort reputed to be worth using. No fences of wood are expected to stand above three years. Vegetation is rapid in this fine climate, but decay is rapid also. There are very few dead logs lying in the bush."—p. 264.

On the 2nd of April our traveller explored a gully on the north side of the island, and found it "shaded by forest and abounding in ferns and young palms;" he also observed four orchideous epiphytes on the upper branches of the trees. *Peperomias* and ferns were plentiful; the former "are spreading green plants allied to pepper;" they were growing on moist rocks, "on the dark sides of which *Trichomanes Bauerianum*, a membranaceous fern of great beauty, forms tufts exceeding a foot in height." On the rocks of the south coast he found *Asplenium difforme*, a fern resembling *Asplenium marinum*: a little way inland the leaves of this fern are more divided, and it varies through every intervening form, until, in the woods in the interior of the island, the leaves are separated into such narrow segments, that the fructification becomes marginal, and in this state the plant is called *Cœnopteris odontites*. On the 4th, after visiting a gang of invalids employed in stone-breaking, J. Backhouse explored a place called the Cascade, fringed in places with copses and straggling tree-ferns. A little brook winds from the woody hills to an open valley, formerly inhabited by settlers, whose chimneys were still standing, and whose orchards, now run wild, have spread grape-vines, lemons, figs and guavas all around.

"Their sugar-canes have also become naturalized, and border the streamlet thickly, till it falls over a basaltic rock, about twenty feet high, decorated with ferns, and a variety of other plants. Here the brook is again narrowed by woody hills, and margined by luxuriant plants of the broad, sedgy-leaved New Zealand flax, and water-cress, till it emerges on an open, flat, basaltic promontory, from the very point of which it falls, about twenty feet, to the sea beach, where it is lost among the large, rounded,

tumbled stones. Among the sugar-cane and scrub at this point, a beautiful convolvulus-like plant, *Ipomœa cataractæ*, is entwined, and exhibits its large, purple flowers, shot with red. It was named from this place, by Bauer, a celebrated botanist, who accompanied one of the earliest navigators of these seas, and whose 'Flora of Norfolk Island' has lately been published by a person named Endlicher.

"*Ipomœa carinata*, a large plant of the *Convolvulus* tribe, having white flowers, with long tubes, that open at night, climbs among the trees in the borders of the woods. Among the bushes there are two pretty species of passion-flower, *Disemma adiantifolia* and *D. Baueriana*, with copper-coloured blossoms."—p. 268.

(To be continued).

ART. CXL.—*Rarer Plants found near Castle-Howard, Yorkshire.*

By H. IBBOTSON, Esq.

- | | |
|--|--|
| <i>Thalictrum flavum</i> . Banks of the Derwent and Areyholme beck. | <i>Silene noctiflora</i> . Cornfields, not unfreq. |
| <i>Ranunculus Lingua</i> . Bogs near Kirkham. | <i>Sagina apetala</i> . Garden walks, Ganthorpe |
| <i>Trollius europæus</i> . Terrington North Carr and in Holly-hill bogs. | <i>Stellaria nemorum</i> . Oxcarr's wood. |
| <i>Helleborus viridis</i> . About Mowthorpe and Conesthorpe. | —— <i>glauca</i> . Boggy ground near the Derwent. |
| <i>Aquilegia vulgaris</i> . In most of the Castle-Howard Woods. | <i>Cerastium arvense</i> . About Terrington and Conesthorpe. |
| <i>Actæa spicata</i> . Kitscrew wood. | <i>Malva moschata</i> . Fields at Mowthorpe. |
| <i>Berberis vulgaris</i> . Hedges near Slingsby. | <i>Hypericum elodes</i> . Slingsby moor. |
| <i>Corydalis claviculata</i> . Bulmer Hagg. | —— <i>montanum</i> . Gilla Leys wood. |
| <i>Fumaria capreolata</i> . In the park. | <i>Geranium pyrenaicum</i> . East moors, and near Conesthorpe. |
| <i>Nasturtium terrestre</i> . Ponds near Bulmer and Terrington. | <i>Euonymus europæus</i> . Kitscrew wood. |
| —— <i>amphibium</i> . Banks of the Derwent. | <i>Rhamnus Frangula</i> . Broat's plantation, near Ganthorpe. |
| <i>Arabis hirsuta</i> . Fields at Baxtonholme, and on rocks in Mowthorpe dale. | <i>Astragalus Hypoglottis</i> . Welburn moor. |
| <i>Cardamine amara</i> . Banks of the Derwent. | <i>Vicia sylvatica</i> . Frequent in the woods. |
| <i>Thlaspi arvense</i> . Mowthorpe fields. | <i>Cerasus Padus</i> . Hedges at Ganthorpe. |
| <i>Erysimum cheiranthoides</i> . Fields near Terrington. | <i>Spiræa Filipendula</i> . Welburn Moor. |
| <i>Viola palustris</i> . Terrington Carr and Holly-hill bogs. | <i>Rubus suberectus</i> . Potiechar bank wood. |
| —— <i>hirta</i> . Gilla Leys wood. | —— <i>corylifolius</i> . Ray-wood; Cross hill, Ganthorpe. |
| <i>Drosera longifolia</i> . Slingsby moor. | —— <i>Koëhleri</i> . Raywood; Ganthorpe Broats plantation. |
| —— <i>anglica</i> . Terrington carr, very rare. | —— <i>β. fusco-ater</i> . Raywood. |
| <i>Dianthus deltoides</i> . In the Coom near Terrington. | —— <i>rudis</i> . Raywood. |
| <i>Silene Otites</i> . East Moors, now probably extinct. | —— <i>rhamnifolius</i> . Cross hill, Ganthorpe |
| | <i>Sanguisorba officinalis</i> . Meadows, com. |
| | <i>Rosa spinosissima</i> . Common. |
| | —— <i>villosa</i> . Banks of the Derwent. |
| | —— <i>canina β. sarmentacea</i> . Hedges near Baxtonholme &c. |

- Rosa arvensis*. Ganthorpe moor.
- Myriophyllum verticillatum*. Pools and ditches near Crambeck.
- Callitriche autumnalis*. Terrington Carr.
- Hippuris vulgaris*. In the Derwent at Crambeck.
- Peplis Portula*. Ganthorpe Broats.
- Bryonia dioica*. Hedges at Welburn.
- Sedum Telephium*. Near Welburn.
- *dasyphyllum*. Walls at Terrington
- Saxifraga granulata*. Pasture at Howthorpe.
- Chrysosplenium alternifolium*. Boggy ground near Dalby.
- Sium latifolium*. Bogs near Crambeck.
- *angustifolium*. Terrington Carr.
- Oenanthe Phellandrium*. By the Derwent at Crambeck.
- Torilis nodosa*. Fields near Terrington and Conesthorpe.
- Myrrhis odorata*. Plentiful at Crambeck, Baxtonholme and Mowthorpe.
- Fedia dentata*. Conesthorpe fields.
- Inula Helenium*. Mowthorpe dale.
- Bidens cernua*. Ponds in the park.
- Chrysanthemum segetum*. Fields at Baxtonholme.
- Antennaria dioica*. Slingsby moor.
- Cirsium eriophorum*. Roughhills plantation, near Ganthorpe.
- Carlina vulgaris*. Ganthorpe moor.
- Serratula tinctoria*. Fields near Ganthorpe and in Head Hagg wood.
- Picris hieracioides*. Mowthorpe dale.
- Jasione montana*. Terrington Broats.
- Campanula glomerata*. Meadows, frequent.
- Specularia hybrida*. Fields near Hovingham and Conesthorpe.
- Oxyccoccus palustris*. Terrington Carr.
- Pyrola minor*. In several of the Castle-Howard woods.
- Villarsia nymphaeoides*. Lakes in the park.
- Gentiana Pneumonanthe*. Terrington Carr
- Lithospermum officinale*. Oxcar's wood and hedges near Welburn.
- Verbascum Thapsus*. Mowthorpe dale.
- Linaria minor*. Bulmer fields.
- Rhinanthus major*. Cornfields nr. Welburn
- Veronica polita*. Conesthorpe fields.
- Lycopus europæus*. By the Derwent at Crambeck.
- Melissa Acinos*. Fields at Baxtonholme.
- *Calamintha*. Roadside between Hovingham and Slingsby.
- Nepeta Cataria*. Hedges near Fryton.
- Lamium amplexicaule*. Fields near Terrington.
- Galeopsis Ladanum*. Flds. nr. Hovingham
- Verbena officinalis*. About Ganthorpe and Welburn.
- Utricularia vulgaris*. Ditches nr. Crambeck
- *minor*. Terrington Carr.
- Hottonia palustris*. Ditches nr. Crambeck
- Lysimachia vulgaris*. Banks of the Derwent
- Polygonum Bistorta*. Meadows near Ganthorpe
- Daphne Laureola*. Gatherley mills farm.
- Orchis ustulata*. St. Ann's meadow.
- Gymnadenia conopsea*. Meadows, not unfrequent.
- Habenaria viridis*. Welburn moor; Ganthorpe town's pasture.
- *bifolia*. Cum Hagg wood, and other places.
- Ophrys muscifera*. Oxcar's wood.
- Spiranthes autumnalis*. Ganthorpe moor.
- Listera cordata*. Ganthorpe Broats plantation.
- *Nidus-avis*. Cum Hagg wood, Thortle wood, &c.
- Epipactis latifolia*. Thortle wood.
- *palustris*. Terrington N. Carr.
- Paris quadrifolia*. Woods, very common.
- Convallaria majalis*. Cum Hagg wood, Slingsby wood, &c.
- Gagea lutea*. Oxcar's wood.
- Ornithogalum umbellatum*. Terrington Broats.
- Colchicum autumnale*. St. Ann's meadow.
- Sagittaria Sagittifolia*. In the Derwent.
- Butomus umbellatus*. Ditto.
- Lemna trisulca*. Ditches near Crambeck.
- *polyrhiza*. Castle-Howard ponds.
- Isolepis fluitans*. Terrington Carr.
- Blysmus compressus*. Welburn moor, rare.
- Scirpus sylvaticus*. By the Derwent near Crambeck.

- Eleocharis acicularis*. Margin of Castle-Howard lake.
 ——— *multicaulis*. Slingsby moor.
Rhynchospora alba. Ditto.
Carex curta. Terrington Carr.
 ——— *intermedia*. Ganthorpe Broats and Holly-hill bogs.
 ——— *muricata*. Coom near Terrington ; Park-field ; Ganthorpe.
 ——— *divulsa*. Cum Hagg wood, very r.
 ——— *teretiuscula*. Terrington Carr.
 ——— *fulva*. Slingsby moor.
 ——— *binervis*. Terrington Carr.
 ——— *pilulifera*. Ganthorpe moor; Wath wood.
 ——— *filiformis*. Terrington Carr.
 Ganthorpe, near Whitwell,
 Yorkshire, November 15, 1842.
- Alopecurus agrestis*. Bulmer fields &c.
Koeleria cristata. Ganthorpe moor.
Poa rigida. In various localities.
Festuca bromoides. Coom near Terrington.
 ——— *loliacea*. St. Ann's meadow.
Bromus secalinus. Fields near Howthorpe and Bulmer.
 ——— *racemosus*. Fields near Welburn.
 ——— *erectus*. In various localities.
Calamagrostis Epigejos. Thortle wood.
 ——— *lanceolata*. Cum Hagg wd. Conesthorpe banks, &c.
Elymus europæus. Mowthorpe dale.
Hordeum pratense. Meadows near Ganthorpe and Mowthorpe.
- H. IBBOTSON.

ART. CXLI. — *Varieties*.

278. *Note on Adiantum Capillus-Veneris*. About sixteen years ago I found *Adiantum Capillus-Veneris* on the Clee hill, Titterstone. It was growing among the stones, on the ascent to the group of rocks called the Giant's Chair. I plucked a piece of it as a specimen, and placed it in my book, leaving the root. This specimen I kept by me for some time, but at last it was lost, and of the loss I took no notice, not doubting that the next time I visited the spot, I should again find the plant. However, I have hitherto been unsuccessful in my researches, but it would be well if some one would diligently search for it, and perhaps it may again be discovered.—*Fred. Westcott; Spring St., Edgbaston, December, 1842.*

279. *Note on Convallaria bifolia*, Linn., as a reputed British Species. In connexion with the notice of the recent discovery of this beautiful little plant in England (Phytol. 520), I beg to add that it is mentioned as indigenous in the woods at Hampstead, Middlesex, in the list of wild plants in the 'History of Hampstead' by Park, published, I believe, thirty or forty years ago: and in 1835 I detected several patches of the plant, apparently well established and really wild, under the shade of fir-trees, growing near the highest parts of Caen wood, the property of the Earl of Mansfield, between Hampstead and Highgate. A year or two before that time, I had also observed it under fir-trees in Aspley wood, Bedfordshire. The village

of Aspley is situate at the distance of a short walk from the town of Woburn : I have no means of ascertaining if specimens may still be obtained from thence. *Convallaria majalis* was plentiful all over Aspley wood, but past flowering when *C. bifolia* was found. This wood is one of the most picturesque and delightful that can be imagined. It was a favourite resort of the late amiable poet, Wiffen, when domiciled at Woburn Abbey ; and many of the charming graphic descriptions of woodland scenery appearing in his works, may well be supposed to have been depicted from the originals of this delightful locality.—*Edward Edwards ; Bexley Heath, Kent, March 4, 1843.*

280. *Note on the Surrey locality for Fritillaria Meleagris.* In the ' Naturalists' Almanack ' for 1843, it is said that " this very beautiful and local plant flowers profusely in some meadows at Mortlake," (p. 9). This species, called by the country folk " snake's head," used to flower in a meadow at Mortlake, Surrey, known from that circumstance as " the Snake's-head Meadow," but of late years it has become very scarce, if not altogether eradicated by the ruthless hands of the village children, by whom the early showy plant was coveted as an ornament to their May garlands. The meadow is at the Thames side, beyond the brewhouses, and about midway between the village and Kew bridge. On visiting the spot at the proper time, during several seasons within the last five years, I was not able to obtain more than a single specimen. I am not aware of any other recorded station for the Fritillary in the immediate environs of the metropolis.—*Id.*

281. *Lithospermum purpureo-cæruleum.* " The purple gromwell, a local and very beautiful plant, found in Darenth wood, in Kent,"—(Nat. Alm. 11). To the best of my belief, this species does not *now* occur in Darenth wood. I cannot learn that any of my friends have detected it there during recent years ; neither have I, after numerous diligent searches, been able to meet with it. I possess specimens from Babbicombe, Devon.—*Id.*

282. *Pæonia corallina.* " The peony, a plant now only found in some small islands of the Bristol Channel, and even in these it is becoming year after year less abundant, and will perhaps before long cease to exist in Britain in a state of nature,"—(Nat. Alm. 13). May I venture to enquire, through the medium of ' The Phytologist,' if the above statement can be verified by any reader of that useful periodical ; and if it is within possibility to hope to obtain a specimen of so great a desideratum to our herbaria ?—*Id.*

283. *Scilla autumnalis.* " There are several spots on Blackheath where it is abundant,"—(Nat. Alm. 19). Within recollection this plant

was tolerably plentiful on Blackheath, but I fear it is now well nigh lost in that locality. Certainly it has been far from abundant for many years, owing to the heath having become a well-trodden promenade, and the frequent resort of cricket-players &c., which formerly was not the case. I noticed the plant, in small quantity, near the clump of trees on the heath, near the highway to Eltham, a few autumns ago; last year not a single specimen appeared. I believe it may still be met with in abundance at the Warren, at Shorne in this county.—*Id.*

284. *Habitat for Tordylium officinale*, Linn. (Eng. Bot. 1st edit. t. 2440). I used to meet with a plant which I believe to have been this species, about Swanscombe, in bushy places between the church and the entrance to Swanscombe wood, in passing from the village to the wood. It was to be found there in 1839; not having visited the locality since that time, I cannot affirm that it yet exists there. This station for it is not given in any list of localities with which I am acquainted. The plant seems to be now erased from our Flora; it does not appear in the Edinburgh Society's Catalogue.—*Id.*

285. *Note on Dicranum adiantoides and taxifolium.* Allow me, through the medium of your valuable periodical, to offer a few remarks on *Dicranum adiantoides* and *taxifolium*. Since the commencement of the present season, my attention has been particularly directed to the consideration of these two mosses, and every observation tends to confirm my opinion that they are varieties of the same species, though their extreme forms are widely different. The nearly allied species, *D. bryoides*, is very variable in form and size. I have luxuriant specimens before me from one of our peat bogs, two inches high, which preserve their character of terminal fruit-stalks, and render that species truly distinct: but the characters of the *lateral* and *radicular* fruit-stalks of *D. adiantoides* and *D. taxifolium* are not always to be depended on as specific distinctions. A few days ago I gathered both growing within a yard of each other; *D. taxifolium* covered the bank with its beautiful green foliage, and *D. adiantoides* flourished on the stump of a tree, intermingled with several other mosses. Some specimens of the latter were very fine and characteristic, bearing several lateral fruit-stalks, while others were small, producing them also from the base. *D. taxifolium* occurred mostly with radicular footstalks, but I detected several producing them also laterally, which differed not materially from the smaller specimens of *adiantoides*. The character of flexuose fruit-stalks is not peculiar to any of the species, as I have observed it occasionally in all three. I hope these remarks may elicit further information on the subject from those who are more

competent to treat on it than myself.—*Joseph Sidebotham; Manchester, March 6, 1843.*

286. *Note on Vegetable Morphology.* I cannot see how the luxuriant growth of a stamen, causing it to produce a petaloid expansion at its upper extremity, in addition to those parts necessary for its peculiar functions, can be regarded as a proof of a descending metamorphosis, (Phytol. 523); by which I understand a dwindling away as it were of the vital energy of the plant, preventing the development of the elementary structures into the highest forms of which they are capable. This theory of a descending metamorphosis appears to me to be unphilosophical in the extreme, for surely, if we can trace the same type through a series of organs, the simplest and first developed of which can, if necessary, perform the collective functions of the whole, we cannot hesitate to take this simplest form as primary. I consider that the monstrosities we see in Dahlias &c. are caused, immediately, by an excess of nutriment afforded to the plant, which necessitates a great development of the organs of digestion and respiration, viz., the leaves: this, of course, diminishing the power of the plant to perfect its floral organs, and thus causing what may be termed an arrest of development, whereby stamens remain petals, &c. This does not explain the fact mentioned by Mr. Bladon; but if the anther *was* perfect, which he says it appeared to be, there is nothing very extraordinary in the production of a small petaloid expansion from the stamen, arising from a redundancy of vital action, when we consider how closely the two parts in question are allied.—*Arthur Henfrey, M. Mic. Soc., Curator to the Bot. Soc. Lond.; March 8, 1843.*

287. *Note on the "Daill llosg y Tân."* In answer to Mr. Lees' enquiry respecting the above plant (Phytol. 521), I have enclosed a few leaves and a young plant of the species known by that name in this part of Gwent,* and applied to the same purposes. As I have never examined the inflorescence of this plant I cannot give its name, but it is evidently monocotyledonous, and not a fern. In the summer the leaves are considerably larger, some of them being an inch or an inch and a quarter in breadth. They never rise above the water, but at that season lie incumbent on the surface. At the present time those with the longest stems lie horizontally, about half an inch below the surface, while the shorter-stemmed ones are as nearly upright as those of the generality of plants. Whether the circumstance of their sinking below the surface is owing to the late frosts or not, I am

* Gwent, the northern and western districts of Monmouthshire.

unable to say, but I had to break the ice to procure the specimens sent. The manner of using the leaves is to lay a number of them on the burn, and as they dry to replace them by fresh ones. A friend of mine, a native of Morganwg,* informs me that in that part the leaves are mixed up with lard, so as to form an ointment; he thought that the leaves known by the above Cambro-British name were very much larger than the size stated; perhaps some other species may be used by the Glamorganshire people for the same purpose, as the name only indicates the "leaf for a burn by fire."—*James Bladon; Pont-y-Pool, March 8, 1843.*

[The plant sent by our correspondent as the "Daill llosg y Tân" of Gwent, we believe to be the common pondweed,—*Potamogeton natans*.—*Ed.*]

288. *On the influence of Light in producing the Green Colour of Plants.* About Christmas, 1841, I was searching in a wood, chiefly oak, for some lichens to decorate the perches in a glazed case, intended for the reception of some ornithological specimens. I happened to turn over with my foot a piece of oak bark, about fifteen inches long: the side next the ground (the external part of the bark when *in situ*) was covered with lichens of the most vivid green, quite as bright as that of any leaves in early summer, not the pale colour of young shooting leaves, but of those arrived at mature growth. From the appearance of the grass under and on each side of the place where the bark had been, it had evidently lain there at least all the previous summer: yet I have never seen any lichens of the same or any other species, exposed to the full light of "day's garish eye," in the least approaching the vividness of the colour in the specimens alluded to above.—*Id.*

[The following passage relating to the Algæ, which are nearly allied to the Lichens, occurs in the Introduction to Harvey's 'Manual of British Algæ.' After mentioning the three principal varieties of colour among the Algæ, namely, grass-green, olivaceous-brown or olive-green, and red, the author states that the first of these colours is characteristic chiefly of such species as are "found in fresh water, or in very shallow parts of the sea, along the shores, and generally above half-tide level," the great mass of the green Algæ being inconsiderably submerged. "The olivaceous-brown or olive-green is almost entirely confined to marine species; * * the red also is almost exclusively marine, and reaches its maximum in deep water. * * How far below low-water mark the red species extend has not been ascertained, but those from the extreme depths of the sea are of the olive series in its darkest form. For the colours of these last it has puzzled botanists not a little to account. It is well known that *light* is ab-

* Morganwg, the eastern part of Glamorganshire. The above names are sometimes applied in a more extended manner, indicating the whole of each county.

solutely necessary to the growth of land-plants, and that the green colour of their foliage altogether depends upon its supply: and if they be placed in even partial darkness, the green quickly acquires a sickly yellowish hue, and finally becomes whitish. But with Algae it is different. At enormous depths, to which the luminous rays, it is known, do not penetrate, species exist as fully coloured as those along the shore. They therefore, in this respect, either differ from all other plants (Fungi included), or perhaps, what are called the *chemical rays*, in which seem to reside the most active principles of solar light, may be those which cause colour among vegetables, and these *may* penetrate to depths to which luminous rays do not reach. But this is mere supposition. Lamouroux suggests that 'the particles of light, or its elementary molecules, combined or mixed with the water,' suffice for this purpose. However this may be, it is worth remarking that this property among Algae, of producing vigorous growth and strong colour without the agency of light, affords another link between them and the animal kingdom, among the lower tribes of which, light is by no means essential to growth and the most brilliant colour."—p. ix. This passage is interesting in itself, and in some measure applies to the subject of the preceding communication.—*Ed.*]

289. *Note on Viviparous Grasses.* It appears to me that some misapprehension exists with regard to what are called "viviparous" grasses. I have several times been deceived by the term, and should like to see the matter cleared up in the pages of 'The Phytologist.' In works of authority we are told that "in wet seasons the seeds of grasses frequently germinate before they fall from the husks, and that a crop of young plants at the summit of the parent stem is the consequence," or words to that effect. Now in the greater part, or all the cases of viviparous grasses which have come under my observation, the plants *have never flowered at all*, and of course *produced no seed*. How far, *en passant*, may this circumstance be considered as illustrating the morphological doctrine, that every flower is but a stunted branch? *Festuca ovina*, β . *vivipara*, growing in my garden, produces heads of young plants in the above manner every year, but never flowers at all. That such is the case with wild specimens of this and other species that are found viviparous, we are by no means led to suppose; in fact we are informed just the opposite. Do the seeds of pasture grasses *ever* germinate in the husk, like wheat, when it is said to "sprit"? The following are the grasses which I possess or have heard of as being occasionally viviparous. — *Nardus stricta*, *Alopecurus pratensis*, *Agrostis vulgaris* and *alba*, *Aira caspitosa* and *alpina*, *Glyceria fluitans*, *Poa alpina*, *Dactylis glomerata*, *Cynosurus cristatus*, *Festuca ovina* and *duriusecula*, and ? *Lolium perenne*. — *Leo. H. Grindon*; 32, *Higher Temple St., Manchester, March 13, 1843.*

290. *Note on Polygonum Convolvulus.* We have a beautiful variety of *Polygonum Convolvulus* growing in many places about Manchester, *with winged fruit*, and so exceedingly luxuriant in growth

that it was mistaken for *P. dumetorum* by two or three botanists last autumn. But the wing shrivels so much in drying, that the error can only be made with recent specimens, and even then the roughness of the testa would of course remove all doubt as to the species.—*Id.*

[We were informed by the late Professor Don, that it was this winged variety of *Polygonum Convolvulus* which led to the insertion of *P. dumetorum* (under the name of *Pagopyrum membranaceum*, *Munck.*) in Gray's 'Natural Arrangement of British Plants,' previous to the discovery of the latter as an indigenous species.—*Id.*]

291. *On the arrangement of a Herbarium.* In reply to the enquiry on the wrapper of the last No. of 'The Phytologist,' respecting the best method of arranging a herbarium, I beg to offer a description of the plan of my own, which is both compact, neat and easy of reference, and answers the end for which it was designed admirably well. In the first place I have six guard-books, made of *blue demy* paper, three quires in each, but this being rather too little, I would recommend three and a quarter: they must be at least 4½ inches wide in the binding. I have them labelled, "Herbarium Britannicum, No. 1, 2," &c. and also "Linnæan System," with the names of the classes contained in each volume. No. 1 has the first four classes; No. 2 has one—Pentandria; No. 3 the next seven; and No. 4, 5 and 6, four classes each. Dividing the system in this manner renders the contents of each volume as nearly equal as possible. At the beginning of each volume I have an index to the classes, orders and genera contained in it, referring to the same pasted on the corner of the left hand page, where each commences, one or more leaves being allotted to each genus. The whole is arranged after the fourth edition of Hooker's 'British Flora.' I have also one of Francis's lists of species, which is taken from the above work, cut up and pasted at the ends of the volumes. On this I mark off the species as I get them; so that by turning to the lists I can see at once both what each volume contains and what are desiderata. In the next place I have the specimens fastened down on half sheets of *printing demy*, with very narrow strips of blue paper; for this purpose I use common paste. When this is done, and the paste is dry, to prevent the attacks of insects, I lay on a little weak solution of corrosive sublimate in spirits of turpentine. In case of small species, such as Veronicas, violets, saxifrages, &c., I have more than one on the same half sheet, but still keep up the arrangement as above. These leaves are then put loose in their proper places between the leaves of blue paper, which adds greatly to the beauty of the whole. It may be thought that these books are very unwieldy, but they are in fact no more so than Gerard's Herbal, or any

other volume of a similar size. This might be remedied by dividing the system into smaller portions, and having a corresponding number of books, which would perhaps be an improvement; in this case I would allow a leaf to each species throughout.—*Samuel King; Lane House, Luddenden, near Halifax, March 13, 1843.*

[The above is the only communication we have received in reply to the enquiry on the wrapper of the *March Phytologist*, relative to the best method of arranging a herbarium. We are obliged to Mr. King for his kind attention, and in our next number hope to give further information.—*Ed.*]

292. *Note on the supposed new British Cerastium.* In the number for this month (*Phytol.* 497) Mr. Edmonston has endeavoured to show that the *Cerastium latifolium* of Linnæus was not known to British botanists as an indigenous plant, until discovered by himself in Shetland; the plants of Wales and the Highlands, hitherto so named by the botanists of this country, being only a variety of *C. alpinum*. This idea is backed by a reference to the opinion of Mr. C. C. Babington, whose botanical acuteness, and particular study of the genus *Cerastium*, combine to render his opinion on the subject deserving of attention. After reading the paper of Mr. E., I examined living plants of the *Cerastium alpinum* and *latifolium* (of British authors), gathered on Ben Lawers in 1841, and now in my garden; also numerous specimens in my herbarium, from Wales and the Highlands, from Faroe, Norway, Switzerland, and Arctic America; and likewise the descriptions of them by various botanical authorities. The conclusion arrived at is, first, that the differential characters assigned to the two species (of Linnæus) by Mr. Edmonston are quite untenable; and secondly, that the Shetland plant is in all likelihood a mere form or variety of the same species as the *C. latifolium* (of British authors) found on many of the Highland mountains. I consider the characters assigned to *C. alpinum* by Mr. Edmonston to be untenable, because they would exclude not only many of the Highland plants commonly called *C. latifolium*, but also various specimens of undoubted *C. alpinum* preserved in my herbarium; while, on the contrary, his characters of *C. latifolium* (of Linnæus) apply to some of my specimens of *C. alpinum*, quite as well as they apply to my Swiss specimens of *C. latifolium*. To go no farther than the leaves (which indeed afford Mr. E. the strongest contrast—upon paper), I find this year's shoots of the Ben Lawers plants, both *C. alpinum* and *C. latifolium*, bearing leaves equally short, broad, and obtuse, as the leaves in Mr. Edmonston's figure of his Shetland plant. In some of my dried specimens of *C. alpinum* I observe the leaves are obtuse, while in others they are acute;

and in a specimen of *C. latifolium* (of British authors), gathered on Ben Lawers, there are lanceolate, ovate, and almost orbicular leaves from the same root. In Koch's Synopsis, the same terms are applied to the leaves of both species, namely, "elliptic or lanceolate." It is consequently evident that Mr. E. was describing only particular forms of these plants, when he set down the leaves of *C. alpinum* as "ovate, or ovate-lanceolate, acute," and those of *C. alpinum* as being "orbicular, obtuse." Each species produces both these forms of leaves. The other contrasted characters given by Mr. E. appear to be as little constant as those taken from the leaves.—*Hewett C. Watson; Thames Ditton, March 28, 1843.*

293. *Localities of Orchis hircina*, Scop. and *O. macra*, Lindl. For the information of your correspondent, Mr. E. Edwards (Phytol. 555), I send the following. *Orchis hircina*, Scop., in consequence of the rapacity of collectors, is nearly if not entirely eradicated from the neighbourhood of Dartford, Kent. It was to be found to a certainty near Puddledock and Stanhill, in Wilmington parish, about twenty or thirty years ago, in the hedge-rows; also at Trulling Down, in the road to Greenstreet Green. Sir James Edw. Smith, Sir Wm. Hooker, Mr. Borrer, the late Professor Don, Mr. George Don, Mr. Joseph Smith, Mr. Anderson of Chelsea, and myself, have gathered it in these stations, and I dare say it is still to be met with at or near some one of the above-mentioned places. *Orchis macra*, Lindl., I have gathered at Stonewood, near Bean; at the entrance to Lullingstone castle, and in a copse near the farm-house at Mapplescombe, in Kingsdown parish; and I think it is likely to be met with now at the latter place, if diligent search be made for it.—*Wm. Peete; Keston Heath, April 6, 1843.*

294. *On the proposed change in the name of Equisetum limosum.* To alter a name which is now generally adopted by botanists, solely because a different name was applied to the same species of plant a century ago, would surely be an adherence to the letter rather than to the spirit of that useful rule which says that priority must decide the name. The rule itself is highly convenient to prevent confusion in nomenclature, but surely, it is better to disregard the rule in any particular case, where an adherence to it would actually create confusion. Moreover, in the present instance, it seems doubtful whether the rule really sanctions a change. I deem it highly probable that the two Linnæan names, *E. limosum* and *E. fluviatile*, belong to two forms (unbranched and branched) of the one species which Smith and hosts of other botanists have known under the former name. If so, the

name of its variety (*E. fluviatile*) should not be substituted for the name of the species, (*E. limosum*). As to the plant now universally called *E. fluviatile* by British botanists, the same objection would not lie against a change for an older name than that erroneously applied to it by Smith and others. The species which is now known in Britain as *E. fluviatile*, must have been confounded with *E. arvense* by Hudson and others; for it is too frequent to have remained unknown. The *E. fluviatile* of Hudson must be the branched form of *E. limosum*; *E. fluviatile* of Smith is probably the variety β . of Hudson's *E. arvense*.—*Hewett C. Watson; Thames Ditton, April 10, 1843.*

295. *Places of growth of Equisetum fluviatile of Smith.* There is a partial inaccuracy in the statement that *Equisetum fluviatile* "affects loose gravelly and sandy places unconnected with water," (*Phytol.* 533). It occurs occasionally in corn-fields and other places out of water, but is always (as far as my observation goes) short and stunted in such situations. The finest examples that I have met with were in the counties of Chester and Lancaster, growing on the red marl, by the sides of streams or in water with a deep muddy bottom. Indeed, it is a notion among the rustics of Cheshire, that horses get "bogged" by their endeavours to graze on this plant in the muddy pools of that county; and I have certainly seen a horse almost over head in mud in a small pond filled with the tall "horse-tails," which is the name given more particularly to the barren fronds of the present species. I may add also that I met with one locality for the same species in the Azores, and was ankle-deep in mud before I could reach a frond of it.—*Id.*

296. *The supposed locality of Geranium nodosum near Halifax.* The communication of Mr. S. Gibson (*Phytol.* 556) is interesting and satisfactory, as tending to establish the accuracy of localities for rare plants which were published in the 'New Botanist's Guide,' on the authority of specimens derived through the hands of Mr. Bowman;—but it seems that we must make an exception to this, in the case of *Geranium nodosum*, the locality of which was printed "Waterham, near Halifax." Mr. Gibson corrects this, by saying that the species was "*G. pyrenaicum*," and the locality "Washerlane, near Halifax." Doubtless I misread the label, which, even now, looks to me more like the name that I printed, than the one now given by Mr. Gibson; but every one must be aware of the difficulty of reading unfamiliar names unless very distinctly written. In regard to the species, however, I can only affirm that my specimen is certainly not *G. pyrenaicum*; but that it belongs to a section of the genus which includes our indigenous *G. pratense* and *G. sylvaticum*, as also that doubtful na-

tive, *G. nodosum*. The specimen is merely the top part of a stem, with the immature fruit after the fall of the petals; and though I cannot speak confidently with only this "fragmentary specimen" before me, I think it *G. nodosum*. But the name on Mr. Gibson's label is "*G. pyrenaicum*," so that there is either a mistake respecting the species, on the part of Mr. Gibson, or, it may be, an accidental substitution of a garden specimen of *G. nodosum* in place of a wild specimen of *G. pyrenaicum*. The question still remains, whether the *specimen* in my herbarium (that of *G. nodosum*, probably, but certainly not of *G. pyrenaicum*) was really gathered wild near Halifax? On receiving the specimen I wrote to Mr. Bowman for further information, but that gentleman was not able to say more than the label stated.—*Id.*

297. *Note on "Dail llosg y Tân."* In a late number of your Journal (Phytol. 521) enquiry was made as to the precise species of fern used by the Welsh peasantry, as a remedy for burns, under the above name, as alluded to in the memoir appended to the prize elegy (or "Marwnad,") to the memory of the late Lady Greenly. The mention of this enquiry to my friend "Tegid," the talented author of the poem, has procured for me, at his instance, from Lady Hall of Llanover, (another great promoter of Welsh literature), accredited specimens of the plant, which, as you will see from the enclosed frond, gathered over "Ffynnon Ofer," proves to be the *Scolopendrium vulgare* of botanists. Lady Hall remarks that it is in "some parts of *South Wales*" where this simple is known as "*Dail llosgi Tân*:" in fact, my enquiries on the subject in some parts of North Wales, availed nothing at all.—*W. L. Beynon; Torquay, April 22, 1843.*

ART. CXLII.—*Proceedings of Societies.*

LINNEAN SOCIETY.

January 17, 1843.—Edward Forster, Esq., V.P., in the chair.

Wm. Taylor, Esq., F.L.S., exhibited specimens of the oil, oil-cake, and seeds, of *Camelina sativa*.

Francis G. P. Neison, Esq., Wm. Maddocks Bust, M.D., and Wm. Osborn, Esq., were elected Fellows of the Society.

Read, a paper "*On the Ovulum of Santalum*," by W. Griffith, Esq.

February 7.—Edward Forster, Esq., V.P., in the chair.

The Rev. W. Hincks, F.L.S., exhibited a specimen of *Neottia gemmipara*, recently found by Dr. Wood, of Cork, very near the original locality named by Mr. Drummond. The specimen exhibited was in a much more advanced state than the one preserved in Sir J. E. Smith's herbarium, and figured in 'English Botany.'

Edward Forbes, Esq., Professor of Botany at King's College, London, was elected a Fellow of the Society.

Read, the conclusion of Mr. Hassall's paper "On the Fresh-water Confervæ."

February 21.—Edward Forster, Esq., V.P., in the chair.

Dr. Frederick Blundstone White, of Tetbury, Gloucestershire, and Edward Doubleday, Esq., were elected Fellows of the Society.

Read, "Observations on the Portraits of Linnæus," by the Rev. F. W. Hope, F.L.S. in illustration of which paper Mr. Hope exhibited an extensive collection of engraved portraits.

March 7.—The Lord Bishop of Norwich, President, in the chair.

J. O. Westwood, Esq., F.L.S., exhibited a wax impression of a medal of Linnæus, issued by the Sheffield Horticultural Society.

Mr. Westwood presented specimens of the aerial processes of the roots of *Sonneratia acida*, sent by Mr. Templeton, from Ceylon. They are described by Mr. Templeton as affording a wood of extremely light and close texture, admirably adapted for lining insect-boxes, on account of the facility with which it admits the finest pins, and the tenacity with which they are retained.

Thos. Corbyn Janson, Esq., and Wm. Hammond Solly, Esq., were elected Fellows of the Society.

Read, a continuation of Mr. Griffith's paper "On the Ovulum of *Santalum*, *Loranthus*, *Viscum*, &c."

March 21.—The Lord Bishop of Norwich, President, in the chair.

M. P. Edgworth, Esq., F.L.S., presented specimens of nineteen species of ferns from the Himalayas, new to the Society's collection.

Capt. Jones, R.N., presented specimens of *Calicium hyperellum* and *Placodium canescens*.

Mr. Kippist presented specimens of *Cæsalpinia coriaria*, used by the natives of Carthage for tanning leather.

Mr. Janson exhibited flowering plants of the "hungry rice" of Sierra Leone (*Paspalum exile*, Phytol. 558), raised from seeds collected by Robert Clarke, Esq.

Mr. Arthur Henfrey was elected an Associate of the Society.

Read, a continuation of Mr. Griffith's paper "On the Ovulum of *Santalum*, &c."

April 4.—Edward Forster, Esq., V.P., in the chair.

M. Nicholas Lund presented a collection of dried plants, gathered by him during a tour in Finmark in 1841-2.

Hugh Cuming, Esq., presented various fruits and seeds collected in the Philippine Islands and Malacca.

J. Parkinson, Esq., presented a specimen of the Ambigo orange from Pernambuco.

Robt. Heward, Esq., presented specimens of *Sphæria Robertsii*, parasitical on the larvæ of a species of *Hepialus* from New Holland, collected by the late Allan Cunningham, F.L.S.

George Sutton, Esq., was elected a Fellow of the Society.

Read, a continuation of Mr. Griffith's paper "On the Ovulum of *Santalum*, &c."

April 18.—The Lord Bishop of Norwich, President, in the chair.

Edward Forster, Esq., presented a section of an unusually large stem of ivy.

Robt. Armstrong, M.D., Nathaniel Buckley, Esq., Charles Pope, M.D., and Thos. White, M.D., were elected Fellows of the Society.

Read, the conclusion of Mr. Griffith's paper "On the Ovulum of *Santalum*, &c."

BOTANICAL SOCIETY OF EDINBURGH.

March 9, 1843.—Dr. Neill in the chair. Dr. Seller, F.R.C.P., was elected a resident member. Numerous donations to the library and herbarium were laid on the table.

The following papers were read :—

1. Remarks on the mode of growth of the British fruticose Rubi, &c. By Mr. Edwin Lees, F.L.S.

2. Continuation of Remarks on the Diatomaceæ. By Mr. John Ralfs, M.R.C.S.L.

3. On *Fumaria micrantha* and *F. calycina*. By Mr. C. C. Babington, M.A., F.L.S.

4. On two new species of *Jungermannia*; and another new to Britain. By Thomas Taylor, M.D. Communicated by Mr. Wm. Gourlie, jun., Glasgow.

5. Notice of the new fossil plant, *Lyginodendron Landsburgii*, *Gourlie*. By Mr. Wm. Gourlie, jun.

Mr. James Macnab exhibited a magnificent cluster of the male catkins of a palm, from one of the South Sea islands, which Lady Harvey had obtained from the captain of a vessel, and kindly allowed to be shown to the Society. Its dimensions, when expanded, were about three feet by three and a half, and it somewhat resembled an ornamental grate-screen, formed of shavings.

This being the anniversary of the Society's public institution, the members and others present adjourned, at the close of business, to the Café Royal, where they sat down to an elegant supper; Dr. Neill, the president, in the chair, supported by Sir William Jardine, Dr. Greville, Mr. Ball of Dublin, Mr. Gourlie of Glasgow, &c.—Professor Graham, croupier. After supper, the usual loyal and appropriate toasts were drank, and the proceedings were further enlivened by occasional songs.

April 13.—Professor Graham in the chair. Numerous donations to the library and herbarium were laid on the table. The attention of the Society was chiefly directed to a donation by William Brown, Esq., R.N., consisting of a miscellaneous collection of plants and fruits from Canton river and Chusan—from the Cape and Prince's Island, including forty species of *Ericæ* from Simond's Bay and Table Mountain.

The following papers were read :—

1. Two botanical visits to the Reeky Linn and Den of Airley, in April and June, 1842. By Mr. Wm. Gardiner, Dundee.

2. On the Diatomaceæ: No. VI. By Mr. Ralfs, Penzance.

BOTANICAL SOCIETY OF LONDON.

April 21. Dr. W. H. Willshire, in the chair. Dr. Thomas Taylor, F.L.S., presented specimens of the following mosses.—*Trichostomum saxatile*, Taylor, MS. found near Dunkerron, Co. Kerry, Ireland, in 1841: and *Bryum recurvifolium*, Taylor, MS. found at Knockavolula, Co. Kerry, Ireland, 1842.

Mr. J. Reynolds, Treasurer, read the commencement of a paper, being "General Researches in the Physiology and Organogeny of Vegetables;" translated from a paper by M. Gaudichaud.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

April 19, 1843.—J. S. Bowerbank, Esq., in the chair.

Read, a paper by Arthur Hill Hassall, Esq., entitled, "Some further observations on the Decay of Fruit." The author refers to an opinion expressed by him in a former paper, that the well-known principle adopted by Liebig, that a body in the act of decomposition is capable of communicating the same to other bodies by a kind of induc-

tion, does not apply to the general form of decomposition occurring in fruit, principally from the circumstance of its attacking it in a highly vital condition, when it could not be supposed to be the subject of any spontaneous or chemical decomposition: and also to that of Dr. Lankester, expressed at a former meeting, that Liebig's views did not afford a sufficient explanation of every example of decay occurring in fruit, as he considered that an apple, once removed from the tree, was no longer in a vital state, but that it immediately became a prey to a species of fermentation. He then proceeded to express his doubts as to the accuracy of the last supposition, inasmuch as it is possible to preserve fruit, free from all visible deterioration, for many months after its removal from the tree. Still, admitting both these and Liebig's views to be correct, they do not, in his opinion, explain the reason why decay commences in a spot gradually extending itself over the surface of the fruit, and does not at once involve its entire substance and fabric. He therefore proceeded to show that these phenomena were to be referred to the operation of entophytal Fungi for a satisfactory solution, still admitting the existence of a second form of decomposition in fruit, this being comparatively of rare occurrence, and which appears to be the result of chemical affinities, in consequence of the fruit having ceased to exist, and to which the views of Liebig may in some cases, perhaps with propriety, be applied. He also stated that since the former meeting of the society he had repeated the experiment of inoculating fruit with the sporules of the Fungi, with the same success which attended the former trial, but that he had failed in inducing decay in sound fruit by the introduction of decayed matter destitute of Fungi in any state; still, however, he considered this might ensue in some cases in which the vitality of the fruit was either totally destroyed, or, at all events, much enfeebled; and even if an invariable consequence, still it would not in any way affect the statement made relative to the independent power possessed by Fungi in originating decay; and again, if these were proved not to do this, they would still be of as much importance in a practical point of view as ever; since, when inserted into fruit which is undergoing spontaneous decay, they produce marked and rapid effects, and speedily ensure its complete destruction. In conclusion, he stated that the apples employed in the experiments were of an exceedingly firm description, and that an equal number of each were inoculated with the sporules and with decayed matter.

Dr. Edward Jenner having again forwarded to the society some beautiful specimens of *Fragilaria pectinalis* and *Diatoma flocculosum*, and having had his attention directed to a report of the Proceedings of the Society, in which it was said that the specimens before sent were animalcules;—forwarded a paper in reply, wherein he states that the objects sent are considered by botanists to belong to Algæ. By Ehrenberg they are classed with his Infusoria and thought to be animalcules, as he supposes they increase by self-division; but this last fact is not sufficient to remove them from the vegetable kingdom, since many plants, such as the lily, crocus, &c., also increase their species by self-division. Three other genera, *Achnanthes*, *Gomphonema* and *Cocconeum*, which are at present classed by botanists with plants, the author considers to be of a doubtful nature, thinking they may possibly be found to be Zoophytes. He also stated that the stomic cells mentioned by Ehrenberg, were the endochrome or colouring matter of the botanist, which, when ripened into sporidia, escapes through an opening in the frustule, being one of the methods by which the species are increased. The author also expressed his persuasion, that in the present imperfect state of our knowledge of these objects, great caution ought to be used in advancing any opinion respecting them.—*J. W.*

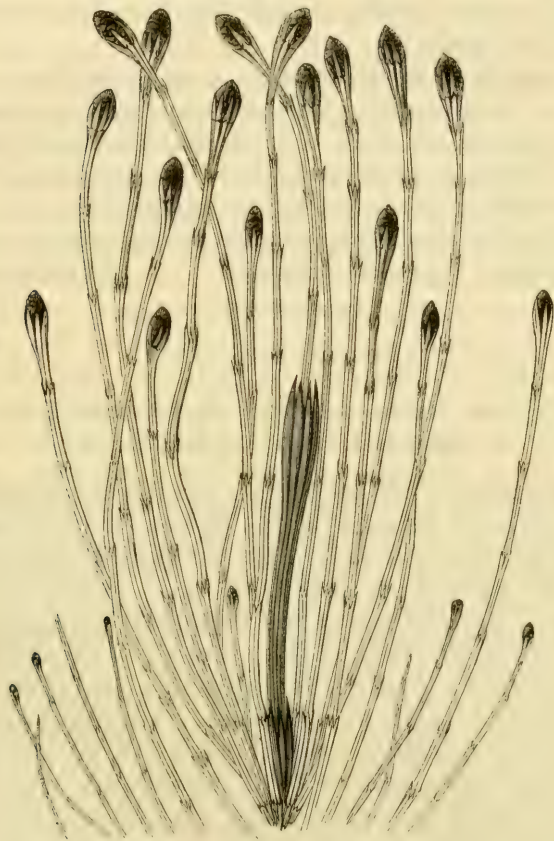
THE PHYTOLOGIST.

No. XXV.

JUNE, MDCCCXLIII.

PRICE 1s.

ART. CXLIII. — *A History of the British Equiseta.* By EDWARD
NEWMAN. (Continued from p. 535).



EQUISETUM PALUSTRE, VAR. POLYSTACHION.

THE variety of *Equisetum palustre* which appears to be universally known by the name of *polystachion*, is at once distinguished by its numerous catkins; these are usually and principally borne on the two

upper whorls of branches : the main stem generally terminating in a catkin of uniform size with the others, as represented in the figure, which is drawn from an exceedingly beautiful specimen, kindly lent me by Miss Griffiths. At other times the stem bears a catkin of the normal size and form, while those on the branches are comparatively diminutive in size ; for specimens of the latter form I am indebted to several kind correspondents, particularly to Mr. Ashworth of Manchester.

Dillenius, in Ray's Synopsis,* gives a very faithful figure of this variety ; and several decided although less characteristic figures may be found in other works.

I may remark that the catkins in this form of the plant are usually small, and in the specimens which have come more especially under my notice, they are very black and compact, much more so than the single apical catkin of the normal form of the plant, and hence they much more nearly resemble those of the preceding species : in other respects this variety so nearly approaches the normal form, that a more minute description appears unnecessary.

EDWARD NEWMAN.

(To be continued).

ART. CXLIV.—*On Statice rariflora.* By CHARLES C. BABINGTON, Esq., M.A., F.L.S., F.G.S., &c.

IN your last number (Phytol. 561) Mr. Henfrey has determined that the *Statice* found at Fareham by Mr. Notcutt, is the *S. rariflora* of Drejer ; but he states it to be his opinion that the Garlieston plant is different, and only a variety of *S. Limonium*. Under these circumstances I think it as well to state that I have only had the opportunity of examining a minute scrap of the former plant, for which I am indebted to Mr. Watson, but that, through the kindness of Prof. Balfour, I possess excellent specimens of the latter. The character of *S. rariflora* given in my Manual (p. 244), is drawn from the examination of the Scottish specimens, compared with two authentic examples of the Danish plant; one of them gathered by Drejer himself, and presented to me by M. Sonder of Hamburg, the other forming No. 2200 of Reich. Fl. Exsic., collected by Steenberg and authenticated by Drejer. Both these specimens are small, and have leaves mostly resembling those of fig. 1, (Phytol. 561); whilst the Scottish plant usually has long leaves, similar to fig. 5. There is, however, amongst those

* Syn. t. 5, f. 3.

sent me by my friend Balfour, one dwarf specimen, agreeing *in every respect* with those from Denmark, in one of which some of the leaves are considerably lengthened in proportion to their breadth, whilst the Scottish specimen referred to has a leaf (it only possesses two) even more ovate-spathulate than in Mr. Henfrey's fig. 1. It is therefore evident that the exact form of the leaves cannot be considered as a certain character. The calyx appears to me to be precisely similar in the Scottish and Danish plants, not differing materially from that of *S. Limonium*; for I fear that the want of denticulations, upon which I have laid some stress in my Manual, will not prove to be a constant character. A reference to the original descriptions, namely, that of Drejer in the Fl. Hafn. 121, or of Fries, who gives it as a probable species requiring examination, under the name of *S. Limonium Bahusiensis*, in his Mant. Prima, 10, will show that no great stress is laid by those distinguished botanists upon the form of the leaves or upon the calyx, but that the specific definition is founded upon the peculiar inflorescence, which is remarkably different in the two plants. In *S. Limonium* the stalk is simple in the lower part, scarcely ever dividing below the middle, the branches are very much divided and corymbose, and curved outwards into a horizontal or even deflexed position, the ultimate divisions are very short, with numerous closely-placed subimbricated flowers. This is the *S. Limonium Scanica* of Fries (Mant. Prima, 10), the *S. Behen* of Drejer (Fl. Hafn. 122), *S. Limonium*, Eng. Bot. 102. On the other hand, in *S. rariflora* the stalk is often divided far below the middle, but the branches are less compound, not at all corymbose, and rather curve inwards and upwards than outwards and downwards, the ultimate divisions are elongated and the flowers are at a considerable distance from each other.

Having, as I trust, shown that the Scottish plant is the true *S. rariflora*, it remains to be determined if the Fareham plant is or is not the same; and I must confess that the acute outer bracts and very narrow calyx-segments now lead me to suspect that it may prove different, in which case it will have to be identified with some continental species, or obtain a name as new. It is right to add, that I have reason to fear having been the misleader of both Mr. Watson and Mr. Henfrey, as (if I mistake not) the suggestion that Drejer's name was applicable to both the Scottish and English specimens originated with me; still I trust that pardon will be extended to me, in consideration of the fact that Mr. Watson intimated it to be his opinion that the plants were identical, and that although possessing good Scottish specimens, my example of the Fareham plant consists of five flowers and

an inch of stalk. I of course therefore drew my ideas of the species from the Scottish plant.

CHARLES C. BABINGTON.

St. John's Coll. Cambridge,
May 6, 1843.

ART. CXLV. — *A Flora of the Neighbourhood of Sandringham, Norfolk.* By JAMES E. MOXON, Esq.

SANDRINGHAM, a hamlet of western Norfolk, situate about seven miles to the northward of Lynn Regis, and intermediate between Castle Rising and Snettisham, offers many inducements to the botanist on account of the number and interest of the productions of its vicinity, mainly attributable to the variety of soils and situations.

The geological features of this part of England are somewhat peculiar. Firstly, there is the chalk; which, after traversing various counties from Sussex, and being broken in upon by the extensive fens and marshes of Cambridgeshire, and of that part of Norfolk, denominated "marshland," again appears in the neighbourhood of Downham, and, occupying the most elevated portions of this part of the county, terminates at Hunstanton, its north-western extremity, situated at the entrance of the Wash, an extensive inlet of the German Ocean. Secondly, the silt, a marine deposit, occupying all the lower parts and valleys along the coast, and extending in some instances to a considerable distance inland. And thirdly, between this latter and the chalk, occurs the greensand formation, also a continuation of the Sussex beds, and terminating likewise at Hunstanton. Behind the chalk, a series of non-fossiliferous marls and clays extends in the direction of the interior of the county. In addition to this series of strata, the immediate neighbourhood of Sandringham offers a variety of localities. Heath, fen, marsh, woods, cultivated lands, meadows and hedge-rows, all nourishing their peculiar species, are spread around. Add to this the variety of soils; sand, clay, marl, loam, chalk and gravel, and likewise the sea-shore, shingly, sandy, and muddy; the salt marshes and ditches at Wolferton, Babingley &c.; and the river at Castle Rising; — all combine to render this a district abounding alike in rare and uncommon plants, as (considering its limits) in the number of species. Nor is this all; for lastly, the undulating character of the country in general, adds further to all these desiderata.

The size of the district examined, and to which the accompanying

catalogue solely applies, is included within a radius of about three miles from Sandringham church. The following are its boundaries:—Northwards, Snettisham; East, the Fring and Harpley road, Anmer, Flitcham, Hillington, Congham; South, Roydon (including the fen), Wootton-heath and North Wootton; and to the West, the sea-coast as far north as Caen-hill wood, near Snettisham.

To avoid a more lengthened description, the nature of its general surface and the predominating vegetation, may be concisely defined as follows.

Divisions of Surface.	Area in Square Miles.	Character.	Predominant Vegetation.
1. Seashore (beyond the sea bank)	1 $\frac{1}{4}$	Stony, sandy, muddy.	<i>Triticum repens</i> , <i>Salicornia herbacea</i> , <i>Atriplex portulacoides</i> , <i>Silene maritima</i> , <i>Glaucium luteum</i> .
2. Salt marsh	5	Silt and clay	Various Gramineæ. <i>Statice Armeria</i> . In the ditches — <i>Scirpus maritimus</i> and <i>Ruppia maritima</i> .
3. Heath and commons, dry.	6	Sand.....	<i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>Ulex europæus</i> , <i>Agrostis vulgaris</i> , <i>Galium verum</i> , <i>G. saxatile</i> , <i>Senecio Jacobæa</i> , <i>Teucrium Scordonia</i> , <i>Pteris Aquilina</i> .
Ditto, marshy....	5	Peat, sand, clay	<i>Erica Tetralix</i> , <i>Junci</i> , <i>Ranunculi</i> , <i>Myrica Gale</i> , <i>Aira cæsp.</i> , <i>Carices</i> .
Ditto, bog & fen	1	Sandy peat, with much Sphagnum.	Various <i>Carices</i> , <i>Eriophorum angustifolium</i> , <i>Droseræ</i> , <i>Melica cærulea</i> , <i>Hypericum elodes</i> , <i>Anagallis tenella</i> , <i>Vaccinium Oxyco.</i>
4. Woods, parks &c.	1 $\frac{1}{2}$	Sand and clay.....	<i>Festucæ</i> , <i>Phalaris</i> , <i>Agrostis vulgaris</i> , <i>Aira cæspitosa</i> , <i>Myrrhis temulenta</i> , <i>Heracleum</i> , <i>Scilla nut.</i>
5. Meadows & pastures.	7 $\frac{1}{4}$	Sandy loams & marls on chalk: clays	Gramineæ (<i>Bromus</i> , <i>Lolium</i> , <i>Poa</i> , <i>Phleum</i> , <i>Cynosurus</i> &c.), <i>Trifolia</i> &c.
6. Cultivated lands, cornfields &c.	14 $\frac{1}{2}$	Ditto	<i>Chenopodium album</i> , <i>Stellaria media</i> , <i>Rumices</i> , <i>Polygona</i> , <i>Senecio vulgaris</i> , <i>Poa annua</i> , &c.

41 $\frac{1}{2}$

The general accordance of these divisions with the position of the geological strata is also worthy of remark; the cultivated lands and pastures lying chiefly upon the chalk formation, the heaths and commons upon the greensand, and the marshes upon the silt.

In conclusion, the following tables will serve to illustrate the *botanical* character of the Flora and the general distribution of the species.

I.—*Number of Species.*

Exogens	64	Natural Orders, containing	384	species.
Gymnosperms...	1		...	1
Endogens	15		...	102
Acrogens (ferns	4		...	19
and allies only)——				
	84			506

II.—*Distribution of Species.*

	Exog.	Gymn.	Endo.	Acro.	Totals.
1. Trees and shrubs peculiar to dry ground	32	1	1	0—	34
... .. moist & watery places	21	0	0	0—	21
2. Plants peculiar to woods, hedges, bushy and shady places in general. Dry ground.....	42	0	6	5—	53
Moist and watery places.	10	0	9	9—	28
3. Plants peculiar to marine localities.					81
Dry or sandy shore	4	0	3	0—	7
Muddy shore, salt marshes & salt-water ditches	16	0	5	0—	21
Salt water (submersed or floating plants)	0	0	2	0—	2
Generally distributed	1	0	0	0—	1
					31
4. Plants peculiar to other dry places	135	0	15	1—	151
5. Plants peculiar to other moist pl. marshes, fens, &c.	63	0	44	4—	111
6. Plants peculiar to water(submersed or floating plants. <i>True aquatics</i>).	6	0	2	0—	8
					270
7. Plants more or less generally distributed	54	0	15	0—	69
					69
	384	1	102	19	506
Total of species....1. Dry ground.....	213	1	25	6—	245
2. Moist ground &c. ...	110	0	58	13—	181
3. True water plants...	6	0	4	0—	10
4. Generally distributed	55	0	15	0—	70
					506

III.—*Predominance of Natural Orders.*

Species.	Species.	Species.
Compositæ 51	207	272
Graminaceæ 43	Amentaceæ: Salicaceæ	13, Osmundaceæ 1 14
Leguminosæ 24	13, Corylaceæ 3, Be-	Alsinaceæ 13
Rosaceæ, 18. Pomeæ, 2.	tulaceæ 2, Myrica-	Polygonaceæ 12
Amygdaleæ, 2. San-	ceæ 1..... 19	Juncaceæ 12
guisorbæ, 1..... 23	Cyperaceæ 18	Chenopodiaceæ 10
Scrophulariaceæ..... 23	Ranunculaceæ 14	Primulaceæ 10
Labiata 22	Cruciferae 14	Stellatæ 8
Umbelliferae 21	Filices: Polypodiaceæ	Boraginaceæ 8
	207	272
		359

Species.		Species.		Species.			
359		437		480			
Papaveraceæ 5, Fumariaceæ 2	7	Valerianaceæ	3	Polygalaceæ 1, Tiliaceæ 1, Lythraceæ 1, Celastraceæ 1, Portulacæ 1, Oxalidaceæ 1, Crassulaceæ 1, Ulmaceæ 1, Callitrichaceæ 1, Vaccinaceæ 1, Cuscutaceæ 1, Aquifoliaceæ 1, Lobeliaceæ 1, Verbenaceæ 1, Orobanchaceæ 1, Coniferae 1, Amaryllidaceæ 1, Iridaceæ 1, Butomaceæ 1, Dioscoreaceæ 1, Araceæ 1, Pistiaceæ 1, Lycopodiaceæ 1 ...	26		
Orchidaceæ.....	7	Solanaceæ	3				
Violaceæ	6	Alismaceæ	3				
Onagraceæ 4 Circææ 1	5	Typhaceæ	3				
Hypericaceæ	5	Fluviales.....	3				
Silenaceæ	5	Araliaceæ 2, Resedaceæ 2, Aceraceæ 2, Linaceæ 2, Malvaceæ 2, Illecebraceæ 2, Scleranthaceæ 2, Convolvulaceæ 2, Campanulaceæ 2, Plumbaginaceæ 2, Lentibulaceæ 2, Gentianaceæ 2, Oleaceæ 2, Juncaginaceæ 2, 28					
Plantaginaceæ	5						
Liliaceæ	5	Berberaceæ 1, Cornaceæ 1, Cucurbitaceæ 1,					
Euphorbiaceæ	4						
Geraniaceæ	4						
Saxifragaceæ	4						
Urticaceæ	4						
Dipsacæ	4						
Equisetaceæ	4						
Droseraceæ	3						
Ericaceæ	3						
Caprifoliaceæ	3						
	437		480			Total...	506

A Catalogue of the Flowering Plants growing in the neighbourhood of Sandringham.

- Thalictrum majus*. Dersingham heath, lo.
Anemone nemorosa. Woods and groves
Ranunculus Flammula. Moist gr. frequent.
 — *Lingua*. Moist places, rare
 — *Ficaria*. Common.
 — *sceleratus*. Wolferton, ra. r.
 — *bulbosus*, *repens* and *acris*. Pastures, common.
 — *arvensis*. Cornfields, ra. rare.
 — *hederaceus*. Ditches &c. rare.
 — *aquatilis*. Ditto, common.
Caltha palustris. Plentiful.
 — *radicans*. Ingoldsthorpe common, 1842; a single plant.
Papaver Rhæas. Roadsides, flds. &c. abt.
 — *dubium*. Redbrink, Dersingham, 1840, rather sparingly.
 — *somniferum*. Roadside at Rising wood, abundant.
Glaucium luteum. Snettisham beach, pl.
Chelidonium majus. Occasionally.
Fumaria claviculata. Wolferton wood, lo.
 — *officinalis*. Not uncommon.
- Hydrocotyle vulgaris*. Moist or watery places on heaths &c. abundant.
Apium graveolens. Ditches in Wolferton salt marsh.
Sium angustifolium. Wade moor, Roydon fen.
 — *nodiflorum*. Roydon fen.
 — *repens*. Watery places, very frequent.
Ægopodium Podagraria. Not uncommon.
Bunium flexuosum. Frequent.
Pimpinella Saxifraga. Roadsides &c. fr.
Oenanthe fistulosa. Watery places, frequent.
 — *pimpinelloides*. Snettisham; Ingoldsthorpe and Rising commons; frequent.
Æthusa Cynapium. Waste ground, not uncommon.
Angelica sylvestris. Woods and marshy places, common.
Pastinaca sativa. Frequent.
Heracleum Sphondylium. Common; abundant in woods.
Daucus Carota. Frequent.

Torilis Anthriscus. Common.
 ——— *nodosa*. Dersingham, not common.
Scandix Pecten-Veneris. Sandringham, fr.
Chærophyllum sylvestre. Frequent.
Myrrhis temulenta. Common; abundant in woods.
Conium maculatum. Sparingly.
Adoxa Moschatellina. Sandringham fir-woods, common.
Hedera Helix. Common.
Berberis vulgaris. Hedges &c. rare.
Epilobium hirsutum, *parviflorum*, *montanum* and *palustre*. Common.
Circæa Lutetiana. Wolferton wood, com.
Cornus sanguinea. Hedges, frequent.
Bryonia dioica. Hedges &c. common.
Nasturtium officinale. Watery places, co.
Barbarea vulgaris. Common.
Arabis Thaliana. Ditto.
 ——— *hirsuta*. Walls of Sandringham church-yard, roadsides &c. common.
Cardamine pratensis. Marshy meadows, very common.
Draba verna. Old walls, sandy ground, &c. very common.
Cochlearia officinalis. Wolferton & Snettisham, common.
Thlaspi Bursa-pastoris. Common.
Sisymbrium officinale. Common.
 ——— *Sophia*. Babingley, Castle Rising &c., frequent.
Erysimum Alliaria. Frequent.
Senebiera Coronopus. Occasionally.
Brassica campestris. Frequent.
Sinapis arvensis. Common.
Reseda Luteola. Frequent.
 ——— *lutea*. Chalky fields and banks, common.
Viola odorata. Common.
 ——— *palustris*. Dersingham fen, frequent.
 ——— *canina*. Abundant.
 ——— *flavicornis*. Sandringham heath.
 ——— *tricolor* and *arvensis*. Frequent.
Drosera rotundifolia. Spongy bogs, abdt.
 ——— *longifolia*. Ditto, common.
 ——— *anglica*. Dersingham fen with both the preceding; Ingoldsthorpe common; Roydon fen: not uncommon.

Hypericum quadrangulum. Marshy places, common.
 ——— *perforatum* and *humifusum*. Common.
 ——— *pulchrum*. Frequent.
 ——— *elodes*. Dersingham and Babingley fens &c. abundant.
Acer Pseudo-platanus. Hedges, rare.
 ——— *campestre*. Frequent.
Polygala vulgaris. Common.
Linum catharticum. Cornfields near Sandringham chalk-pit, not uncommon.
Radiola Millegrana. Rising common, lo.
Malva sylvestris. Common.
 ——— *rotundifolia*. Frequent.
Tilia europæa. Hedges, occasionally.
Lythrum Salicaria. Watery places, freq.
Euphorbia Peplus. Common.
 ——— *Lathyrus*. Waste ground at Sandringham, occasionally.
 ——— *helioscopia*. Fields and waste ground, frequent.
Mercurialis perennis. Wolferton wd. abt.
Euonymus europæus. Wolferton wood.
Montia fontana. Watery places, frequent.
Silene inflata. Frequent.
 ——— *maritima*. Snettisham beach, ple.
Lychnis Flos-cuculi. Watery places, com.
 ——— *dioica*. Hedges &c. frequent.
Agrostemma Githago. Cornfields, occas.
Sagina procumbens. Common.
 ——— *apetala*. With the preceding, oc.
Arenaria trinervis. Sparingly.
 ——— *serpyllifolia*. Frequent.
 ——— *rubra*. Sandy soil &c. abundt.
 ——— *marina*. Wolferton marsh, abt.
Cerastium vulgatum and *viscosum*. Comm.
 ——— *aquaticum*. Frequent.
Stellaria media. Very abundant.
 ——— *holostea*. Frequent.
 ——— *graminea*. Very common.
 ——— *uliginosa*. Dersingham heath.
Spergula arvensis. Wolferton, plentiful.
 ——— *nodosa*. Near Sandringham chalk-pit, common.
Geranium Robertianum and *molle*. Com.
 ——— *pusillum*. Frequent.
Erodium cicutarium. Sandy places, abt.

- Oxalis Acetosella*. Sandringham fir-wood, abundant.
- Rosa rubiginosa*. Borders of fields and woods, common. Wild?
- *canina*. Roydon fen, not plentiful.
- Rubus fruticosus*. Common.
- *leucostachys*. Rare.
- *Idæus*. Wade-moor wood, plentiful.
- *corylifolius*. Hedges, not uncommon.
- *cæsius*. Ditch-banks and moist places, not uncommon.
- Fragaria vesca*. Frequent.
- Comarum palustre*. Dersingham heath; Roydon fen: not uncommon.
- Potentilla anserina*. Frequent.
- *reptans* & *Fragariastrum*. Com.
- Tormentilla officinalis*. Moist heaths &c. abundant.
- Geum urbanum*. Common.
- *rivale*. Wolferton wood, abundant.
- Agrimonia Eupatoria*. Common.
- Spiræa Filipendula*. Anmer road.
- *Ulnaria*. Moist places, common.
- Mespilus Oxyacantha*. Hedges, almost everywhere.
- Pyrus Malus*. Hedges near Snettisham.
- Prunus Padus*. Wolferton wood.
- *spinosa*. Common.
- Poterium Sanguisorba*. Not uncommon.
- Ulex europæus*. Common.
- Genista anglica*. Heaths, occasionally.
- Spartium scoparium*. Ditto, common.
- Ononis arvensis*. Frequent.
- Anthyllis Vulneraria*. Anmer fields, not uncommon.
- Medicago lupulina*. Very common.
- Trifolium repens*. Extremely common.
- *scabrum*. Snettisham beach, abundant.
- *subterraneum*. Ditto, rare.
- *pratense*. Very common.
- *arvense*. Very frequent.
- *procumbens* and *minus*. Comn.
- *filiforme*. Near Sandringham chalk-pit, frequent.
- Lotus corniculatus*. Abundant.
- *major*. Dersingham heath, among bushes, common.
- Ornithopus perpusillus*. Sandringham broom-cover, common.
- Vicia Cracca*. Hedges, frequent.
- *sativa*. Frequent.
- *angustifolia*. Cornfields occasionally.
- *sepium*. Hedges and woods, comn.
- Ervum tetraspermum*. Not uncommon.
- Lathyrus pratensis*. Common.
- Orobis tuberosus*. Dersingham heath, co.
- Saxifraga granulata*. Dersingham common and heath, abundant.
- *tridactylites*. Walls, abundant.
- Chrysosplenium oppositifolium*. Wolferton wood.
- Parnassia palustris*. Field at the back of Wade moor wood; Rising comn.; fr.
- Sedum acre*. Sandy ground, walls, &c. abundant.

(To be continued).

ART. CXLVI. — *Journal of a short run into Badenoch, Strathspey, &c., from the 15th to the 21st of April, 1843.* By Mr. J. B. BRICHAN.

Grantown, April 17, 1843.

DEAR SIR,

I am at present on my return from a very short sojourn in Badenoch; and certainly the season of the year, and the weather when I left home, afford little or no foundation on which to construct any sort of article whatever for a botanical journal. It is quite possible, however, that the very *negation* of Botany may be made somewhat interesting to the lovers of Flora, especially if it be merely a temporary

negation, the effect of climate and season on the vegetable productions of a district in which, as the season advances, the hills and vales are thickly clad with

“Bells and flow’rets of a thousand hues.”

And such is the romantic Highland district in which I have just been. The day before I entered it was bleak and wintry, and I was glad to get myself housed for the night at Carr Bridge. Next day was fresh and mild, and the snow, which but the day before gave to everything the appearance of winter, now only chequered mountain and plain, and was fast yielding to the genial breath of what was really spring weather. Still, however, except where a small spot appeared in the shape of a garden, no green thing but “the evergreen pine” cheered the sight that was longing for the sweet gems of spring. And perhaps a more dismal spectacle could scarcely meet a botanist’s eye, than the one I witnessed between Carr Bridge and Aviemore. The southern slope of a tolerably high and rocky hill, was thinly sprinkled with blasted firs, the remains of a forest consumed by fire, or dead from the sterility of the soil. It was some alleviation of the dreariness of such a sight, that on each side of the road the native birch, yet scarcely throwing out a catkin, scented the air with its peculiar odour. As I went on, with the magnificent group of the Cairngorms, partly clad in snow, on the one hand, and bleak rocky hills on the other, the wide wooded valley of Rothiemurchus spread before me, and waiting, as it were, “in the hope of summer eves,”—I could not help thinking, and being delighted with the thought, how many a beautiful flower the summer’s heat would call forth from the mountain cleft, and the sloping woodland, and the rich alluvial plain; and with what ecstasy I—for I *might* be there—would cull the precious gems, and breast the mountain side in search of health, and beauty, and that peculiar pleasure which only botanists know.

As I entered Badenoch, the air was balmy as summer. The heather—I prefer the word to the English *heath*—“exhaled its perfume,” although far from its season of purple bells; and the birch, the prevailing natural wood of the district, grew more thickly on every side of me. Here and there, a few alders and hazels were hanging out their tassels, and a willow occasionally exhibited its golden flowers. The beautiful and romantic Loch Alvie was slightly curled by the breeze, but its vegetation as yet exhibited no signs of life. A few withered reeds were all that remained to show that a single green thing had ever reared its head above its waters. As I drove along the foot of a wooded slope opposite Loch Insh, a solitary primrose cheered

my sight. It was the only wild thing in the shape of a flower that I had seen since I left Morayshire. Between Loch Insh and Kingussie there stretches a vast alluvial plain, in which are dug up the roots and trunks of fir trees, known in Scotland by the name of "moss fir." It is well known that the whole district was once covered with pine. Kingussie signifies "the head of the fir-wood," and Badenoch, "a clump or patch of trees." The plain must have formed, at one time, the bottom of a lake, of which Loch Insh is all that remains.

The weather, as I returned to-day, was equally delightful as before, and wood, and moor, and mountain, seemed "to listen for the rustle of their leaves." Vanessa Urticæ, our earliest butterfly, fluttered around me in considerable numbers. The district, in point of climate, seems not far behind the "How of Moray." Another week, or fortnight at most, would bring it up to the point which the lower and more temperate district had reached when I left it.

The Cairngorm group has frequently witnessed the enthusiastic Rambler after "weeds" scaling its craggy sides, gathering its treasures, and laving his burning brow or parched throat in its cool and delicious fountains. I am not aware that the district of Badenoch has often been botanically perlustrated; but I am quite sure that its richly varied scenery—the extensive plain alluded to—its inferior ranges of hills—the rocky steeps of the "wild and majestic" Craig-dhu—the sweet sequestered Loch Uvie—and the beautiful Loch Laggan, which, though not so large or so well known, may vie with Lochness—would afford to the botanist who could devote a summer month to its examination, as rich a treat and as abundant a *harvest* as any other part of "the stern Scottish Highlands."

April 18. — Dalnashauch Inn, near Bridge of Avon. I have just passed over fourteen miles of excellent road between Grantown and this uncouthly named locality; and I must *bother* you a little more with almost the same negation of Botany which at present characterizes the district above described, and my description thereof. I am near the wildly situated Bridge of Avon (pronounced *Awn*), and hear the unceasing sound of that rapid mountain torrent which issues from Loch Avon, at the foot of Scotland's highest hill—Ben-mac-dui, and of which the honest old farmer, mentioned in Sir T. Lauder's 'Morayshire Floods,' said, alluding to a piece of ground of which the Avon had just deprived him, "I took it frae the Avon, and let the Avon hae its ain again." Certainly this has very little to do with Botany, and amounts to something very like a negation of it. But that I may not be altogether barren on the subject that is dear to all *phytological*

hearts, let me just say that the beautiful drive I have last accomplished exhibits, as the prevailing natural production of Strathspey, “the gay green birk,” at present of course quite purple — that there is a considerable degree of wild Highland grandeur in the immense slope between Castle Grant and the Spey, which is thickly clothed with Scotland’s own pine—and that all along that winding, deep and rapid river, from Grantown to Ballindalloch, “the alders dank that fringe the pool” assert their peculiar right to the river’s margin, and are at this moment clad with a profusion of brown or yellow catkins. The larch, which is planted in great abundance along the hilly slopes, is now throwing out its “tassels red” and sweet virgin green leaves. Its flowers are sometimes *white*—*quære*, why? They are here, as in Badenoch, though I have not mentioned them in my notes on that district, a week or a fortnight behind those in Moray’s balmiest spot — Forres. I think I saw, about half way between this and Grantown, one solitary flower of *Anémone nemorosa*.

In the church-yard of Cromdale, three miles and a half from Grantown, lie the remains of M— C—, one of the sweetest flowers ever born in the Highlands, and transplanted to the lower part of the “Province.” I crave this passing tribute to the memory of one, with whose surviving amiable sisters I am proud to say I am on intimate terms. In April, 1839, I accompanied her remains from Nairn to the interesting spot where they are now mouldering in silent dust. The weather, although it was later in the month than this, was keenly frosty, and the interests of the vegetable kingdom were as far from my thoughts as its beauties were from their summer perfection. At the moment I write, nothing is wanting to complete the interest of the landscape, but the green grass, the blooming heather, and the summer foliage of the forest. My yesterday’s friend, *Vanessa Urticæ*, still flits across my path, enjoying Nature’s hour of balm; and that big, humming, or, as we call him in Scotland, *bumming*, fellow, *Bombus terrestris*, wings his way as briskly as if summer itself were invigorating his powers of flight. The beauties of Strathspey are great, but they are “tame and domestic” in comparison with those of Badenoch. Let botanists visit Clova, if they will—but why not run a little farther north?

Manse of Kirkmichael. — April 18, $\frac{1}{4}$ to 11, P.M. Although half asleep, I cannot resist the temptation I feel to tease you with the very important information that I left Dalnashauch to-day about 1 o’clock, and after crossing the lower extremity of Glenlivet, proceeded up the Avon through what is called Strathdown. About six miles of my

road was so narrow that two vehicles could scarcely pass each other, with a steep slope above and below, the only protection against an overthrow being the natural birch-wood which skirted the way. The alder too was there. Strathdown is a narrow, wild, romantic valley, through which runs the beautifully clear Avon, and about the middle of which, on a bank of the river, some hundred feet above its bed, is situated the manse of Kirkmichael, from which I now write. The view from this spot is delightful, comprehending the summits of Cairngorm and Benavon—the climate not inferior to that of any part of my route above described. The ceaseless *sough* of the Avon here also greets my ear, and reminds me of my late residence on the banks of the Dee, which, in the colour and clearness of its waters it strongly resembles. In the dining room immediately below me is a flower-pot containing a few plants of mignonette in full flower. The seed was sown last spring — the young plants appeared in autumn — and the sweet-scented favourite of ladies and of bees has been in flower all the winter. Good night.

April 19. — I drove to-day to Tomintoul, six miles farther up the Avon than Kirkmichael, and within about twenty miles both of Bal-later and Braemar, but could see nothing to neutralize the same monotonous negation of Botany I have already experienced, except a flower or two of *Tussilago Farfara*, which has been in blossom for the last month. Such, however, is the mildness of the season, that I have observed since yesterday a marked difference in the buds of the trees, now fast opening into green leaves.

April 20.—I am again at Dalnashauch. In my downward progress hitherward the only additional harbinger of summer that I observed was the bog-myrtle; all other things are *in statu quo*. I am about to proceed down the Spey to Rothes, to leave for the present — perhaps for ever — the interesting scenes through which I have passed, and which, though at all times worth seeing, are at this moment but opening into that state of mingled beauty, and sweetness, and grandeur, in which the devotee of phytological science finds his most appropriate and most delightful walk.

Forres. — April 21. The drive down the Spey from Inveravon to Craigellachie is partly through a bleak moorland tract, lying at the foot of Belrinnes, and partly through one lower and more cultivated, in which lie the church, manse and village of Aberlour, and in which, near the river-side, I saw, as evidences of the warmer temperature, patches of *Anemone nemorosa* on one side of the road, and low green meadows on the other. The iron bridge at Craigellachie is a fine

specimen of art: at its northern extremity, where the road, at right angles to the line of the bridge, and parallel to the course of the river, is cut out of the face of a solid rock, grows *Galium boreale*, at this season scarcely visible. At this point I re-entered my own county—Moray. Two miles farther down lies the beautifully situated village of Rothes, with its old castle, romantic *burn* and fertile fields. On the inverted root of a tree, lying above a heap of stones, I observed a single head of *Lamium purpureum*, one of the earliest flowering and by no means least beautiful plants in the climate of Moray.

I left Rothes to-day—the weather still very fine. As I approached Elgin, the difference in the progress of the larch towards its summer foliage, began distinctly to appear; and *Ulex europæus*, now nearly in full bloom, showed the superior mildness of the climate of the “How of Moray.” The gardens and shrubberies were half clad in green. After resting an hour or two, I left Elgin, passed the pine-clad Knock of Alves, the well-known station of the beautiful *Linnæa*, and was soon once more in Forres, where a week ago everything wore the appearance of winter, but where everything now is smiling into summer sweetness, and where, both in summer and winter, there blooms many a tender “bell and flow’ret,” that may well vie with England’s fairest.

I am, Dear Sir,

Your’s faithfully,

J. B. BRICHAN.

To the Editor of ‘The Phytologist.’

ART. CXLVII. — *Notice of ‘A Visit to the Australian Colonies. By JAMES BACKHOUSE.’* London: Hamilton, Adams & Co. 1843.

(Continued from p. 577).

NEW SOUTH WALES.—The continent of New Holland, as far as visited by James Backhouse, seems less attractive to a botanist than the adjacent islands; still there is sufficient to invest it with an interest surpassing that possessed by most other countries with which we are on a similar footing of familiarity. There is nothing to compare with the gigantic forests which form so distinguishing a character of Tasmania, or with the wild luxuriance of Norfolk Island; yet the pines to which that island has given a name, may be seen, even at Sydney, towering here and there above the surrounding scenery, and proclaiming a climate different from our own; and there is a host of trees and plants altogether distinct from those of Tasmania.

On new-year's day, 1835, many beautiful native shrubs were in flower, including *Lambertia formosa*, *Grevillea buxifolia* and *sericea*, *Epacris grandiflora*, &c.: these grow in heathy soil, on the bushy ground covering the sandstone.

January 15.—“We walked to Elizabeth Bay, and met the Colonial Secretary* at his beautiful garden, which is formed on a rocky slope, on the margin of Port Jackson, of which it commands a fine view. Here are cultivated specimens of many of the interesting trees and shrubs of this colony, along with others from various parts of the world, intermixed with some growing in their native localities. Among the last, is a fine old rusty-leaved fig-tree, *Ficus ferruginea*, which is an evergreen, and has laurel-like leaves. A noble specimen of *Acrostichum grande*, a fern of very remarkable structure, from Moreton Bay, is attached to a log of wood, and secured by a chain to a limb of this fig-tree. The walks at this place are judiciously accommodated to the inequalities of the sinuous bay, and are continued round a point covered with native bush. Peaches are ripe in the open ground in abundance, and liberty to partake of them freely was kindly given by the open-hearted proprietor. *Dendrobium speciosum* and *linguiforme*, remarkable plants of the Orchis tribe, are wild here, upon the rocks; and *D. tetragonum* is naturalized on a branch of *Avicenna tomentosa*, covered with rock-oyster shells, and suspended in a tree near the shore. A fine patch of the elks-horn fern, *Acrostichum alcicorne*, retains its native station on a rocky point in the garden.”—p. 239.

In a walk by the north shore on January 27, our traveller observed an old bushy fig-tree overhanging the water, some of its limbs almost covered with *Acrostichum alcicorne* and *Dendrobium linguiforme*; but we pass on to a description of Botany Bay, the account of which is less inviting than its far-famed name would lead us to anticipate, still not without instruction.

“Botany Bay, with its gay shrubs, might wear an imposing aspect to the first navigators of these seas, after a tedious voyage; but its shores are shallow, and not convenient for landing, and most of the land on the north side, is dreary sand and marsh, of little real value. The pieces that are worth anything, are of very limited extent, and are in few hands. One of the proprietors has established a woollen manufactory, which, from the price of labour in this country, is not likely to pay. He told us that the leaves of the wooden-pear, *Xylomelum pyrifforme*, dye wool yellow, and that the branches of *Leptospermum scoparium*, answer the purposes of fustic-wood, and dye fawn-colour. A handsome species of grass-tree, *Xanthorrhœa arborea*, was in flower, in some of the sandy grounds; its root-stocks were surmounted by an elegant crest of rush-like leaves; from the centre of which the flower-stem arose to ten feet in height; somewhat less than the upper half of this, was densely covered with brown scales, giving it an appearance something like a bull-rush. From amongst these scales the small, white, star-like flowers emerged, as in the other species of this genus. The plants with large root-stocks had been destroyed, for fuel, for which purpose they are much valued. In this neighbourhood, as well as at Port Jackson, the sweet tea, *Smi-*

* Alexander MacLeay, Esq.

lax glycephylla, abounds. It is a low, climbing plant, with narrow, heart-shaped leaves, having a taste something like Spanish liquorice. It was used instead of tea, by the early settlers, and formed the chief ingredient in their drink, on occasions of rejoicing."—p. 291.

The following notices of *Zamia spiralis* and three species of *Loranthus* are interesting.

July 18. — "In a bushy hollow we met with *Zamia spiralis*, a singular, palm-like plant, in fruit. The whole fruit has some resemblance to a pine-apple; but large nuts, in red coats, are fixed under the scales forming the outside. The Blacks place these nuts under stones, at the bottom of water, in order to extract some noxious principle from them; they are afterwards converted into food. In wet weather, an insipid, jelly-like gum, which is wholesome, and not unpalatable, exudes from the plant.

"20th. Three species of the genus *Loranthus*, which consists of plants allied to mistletoe, grow parasitically on trees in this neighbourhood. They have handsome blossoms, a little like honey-suckle, but with more green, than yellow or red in them. Two of them have external roots, adhering to the bark of the trees that support them, and incorporating themselves with it; but occasionally, one of these species happens to grow upon the other, and then it emits no external root! This is a striking instance of that power, sometimes exhibited by a plant, to adapt itself to circumstances, and which is called vegetable instinct."—p. 294.

The question of specific identity between the productions of countries so widely separated as Britain and her Australian possessions, is one of great and increasing interest. And when we find the plants and insects of a far distant land named unhesitatingly as identical with our own, we are apt to feel a desire for a more detailed explanation. We learn from the 'Narrative' before us, that "on the margins of the pools of the Bell River, there are reeds,—*Arundo Phragmites*, bull-rushes,—*Typha latifolia*, and some other aquatic plants, similar to those of England." Are we to infer that these are the aboriginal denizens of the spot, or have their seeds been accidentally introduced from the mother country? They occur in the valley of Wellington, formerly a penal settlement for educated prisoners, and still the residence of European missionaries.

On the afternoon of the 25th of September our traveller, still in Wellington Valley, ascended a hill about 500 feet high; from the summit is an extensive view over the adjoining country, which seems to be a continuation of open forest hills, many of them black and bare from fire.

"On the upper portion, there were she-oak, *Casuarina quadrivalvis*, and *Grammitis rutæfolius*, a small fern, both of which are common in V. D. Land, also a *Cycas*? a remarkable *Eucalyptus*, and *Sterculia diversifolia*. Upon the last, there was a remarkable *Viscum*, or mistletoe. Lower down the hill, the beautiful *Acacia venusta* formed a bush about six feet high; it bears heads of small, globular, golden blossoms."—p. 322.

(To be continued).

ART. CXLVIII.—*Varieties.*

298. *List of Jungermanniæ &c. found near Penzance.* I send for insertion in 'The Phytologist,' a list of Hepaticæ found in the neighbourhood of Penzance. Some of the Jungermanniæ may be considered amongst the scarcest and most interesting of our British species, and I believe we need not fear comparison with any district of the same extent in the kingdom. With about four exceptions, all the plants enumerated in the following list may be gathered within three miles of Penzance, and but one species is entirely barren.

- | | |
|---|---|
| <i>Riccia glauca.</i> Wheat-stubbles, Bologas &c., in fruit. | <i>Jungermannia asplenoides.</i> Chyune, with anthers. |
| <i>Anthoceros punctatus</i> , α . and β . Trembath mills, plentifully in fruit. | — <i>punctata.</i> Gulval, with calyces; J. Ralfs, Esq. |
| <i>Marchantia polymorpha.</i> A single fertile plant. | — <i>pumila.</i> Truro river, on shelving stones, in fruit, very scarce. I have also received it from the Rev. C. A. Johns, from near Helston. |
| <i>Fegatella conica.</i> Common, with male receptacles only. | — <i>crenulata.</i> Chyanháll moor, common in fruit. |
| <i>Lunularia vulgaris.</i> Very plentiful; with male receptacles at Trembath mills. | — <i>emarginata.</i> Newlyn cliffs; upon moist rocks, in fruit. |
| <i>Jungermannia calycina</i> , Taylor. Newlyn cliff, beautifully in fruit. | — <i>turbinata.</i> Near Hayle causeway, in fruit. |
| — <i>epiphylla.</i> Common. | — <i>excisa.</i> Dry hedges near Chyanháll moor, in fruit. |
| — <i>Blasia.</i> Chyanháll moor, where it fruits plentifully every season. | — <i>ventricosa.</i> Newlyn cliffs, abundant in gemmæ; and at Carn Brea with calyces. |
| — <i>furcata.</i> Common in fruit. | — <i>bicuspidata.</i> Common in fruit. |
| — <i>pinguis.</i> Chyanháll moor, in fruit. | — <i>byssacea.</i> Chyanháll moor; in fruit August and September. |
| — — β . Hayle sands, in fruit. | — <i>capitata</i> ? Chyanháll moor, near the water's edge. I am not certain if this is not what I take for <i>J. excisa</i> , on dry hedges, somewhat altered by local circumstances. |
| — <i>multifida.</i> Common in fruit. I once gathered it with gemmæ of a yellowish green colour at the extremity of the fronds. | — <i>nemorosa.</i> Gulval, with fruit and gemmæ, J. Ralfs, Esq. |
| — <i>Hibernica</i> , Hook. Hayle sands, in tolerable abundance, where it fruits very beautifully, with both male and female receptacles; the fruit-stalks generally attaining the height of two inches. | — <i>undulata.</i> Bologas, on stones in rivers, moist rocks &c., and on the ground in Chyanháll moor, in fruit. |
| — <i>Ralfsii</i> , Wilson, MS. Hayle sands, with anthers in the autumn and capsules in April. This is a beautiful and highly curious species. | — <i>resupinata.</i> Bologas, on hedges, abundant in fruit: a large state on a moist rock, Newlyn cliffs. |
| — <i>pusilla.</i> Chyanháll moor; in male and female fruit. | — <i>albicans</i> , <i>complanata</i> and <i>scalaris.</i> Common, in fruit. |
| — <i>Hookeri.</i> Chyanháll moor, very sparingly, but the specimens have generally male and female fruit. | |

Jungermannia polyanthos. Trembath mills, in fruit.

— *viticulosa.* Newlyn cliffs, barren.

— *Trichomanis.* Newlyn cliffs, in fruit. There is also a plant very nearly allied to this species, which is frequently found on roofs of caves and other shady places, generally very abundant in gemmæ, which I discovered with capsules last spring, in a rather exposed situation near Newlyn cliffs.

— *bidentata.* Common in fruit.

— *heterophylla.* Newlyn cliffs, in fr.

— *barbata.* Gulval; discovered by Mr. Ralfs since this list was written.

— *Francisci.* Near Haye, with cap-

— *William Curnow*; *Pembroke Cottage, Newlyn Cliffs, Penzance, March 11, 1843.*

299. *Note on the absence of Jasione montana and Verbena officinalis from the vicinity of Edinburgh.* I was much surprised to see from the 2nd edition of the Edinburgh 'Catalogue of British Plants,' that neither *Jasione montana* nor *Verbena officinalis* have been found within thirty miles of that city. Not having been in Scotland, I cannot say whether this is correct, but to us Southrons it seems odd. The *absence* of plants, usually common, though not so striking to the eye, is, or ought to be, nearly as interesting as the *presence* of others usually rare.—*Geo. Sparkes*; *Bromley, Kent, April 18, 1843.*

300. *Note on British Plants occurring in foreign countries.* It would be extremely interesting if some botanist would publish a list of English plants, with the foreign countries in which they are found. The information might be taken from Don's book, as far as that book extends. *Myrrhis odorata* grows in *Spain*, although I have not met with it in England south of Derbyshire, nor do I find it in any of your southern local lists.—*Id.*

[The above note by Mr. Sparkes affords us an opportunity of mentioning Mr. Watson's admirable work on 'The Geographical Distribution of British Plants,' the first part of which, containing the Ranunculaceæ, appeared in the early part of the present year. Being printed for private distribution *only*, we have hitherto hesitated to give a detailed notice of this work; but our scruples having been removed by the perusal of a notice of a previous work on the same subject by Mr. Watson, in Loudon's 'Magazine of Natural History,' we hope, in an early number, to endeavour to do justice to its merits. About a dozen years ago, we received specimens of *Myrrhis odorata*, collected in a pasture field near Chipstead, Surrey, by a young lady, who stated that it was plentiful in the locality, although not cultivated in that neighbourhood.—*Ed.*]

sules and gemmæ; near Redruth, with capsules, anthers and gemmæ, and in summer an elongated state, with black balls.

Jungermannia reptans. Gulval, in fruit, J. Ralfs, Esq.

— *Machaili.* Gulval carne, with calyces, J. Ralfs, Esq.

— *serpyllifolia.* Bologas &c. in fruit.

— *minutissima.* Bologas, in fruit.

— *calyptrifolia.* Gulval, in fruit, J. Ralfs, Esq.

— *dilatata.* Bologas, both male and female states.

— *Tamarisci.* Carn Brea, in fruit.

— ——— *β. apiculata.* Bologas, plentiful in one spot.

301. *Note on Statice rariflora*. Mr. Notcutt's *Statice* (Phytol. 429 and 492) is, I perceive, regarded as a distinct species by some of the continental botanists. Specimens have recently been published in Reichenbach's 'Flora Germ. Exsic.' No. 2200, as "*Statice rariflora*, Drejer! Fl. Hafn. Excurs. p. 121." I have not seen Drejer's work.—*William Borrer; Henfield, April 23, 1843.*

[See also Mr. Henfrey's paper, Phytol. 561; and Mr. Babington's remarks in our present No. p. 594.—*Ed.*]

302. *Note on Smilacina bifolia*. I think it has not been noticed in 'The Phytologist,' that *Smilacina bifolia* was long ago reckoned a British plant, although the fact has been brought forward by Mr. E. Forbes, in Taylor's 'Annals' for February. Parkinson says, "It groweth in moist shedowie and grassie places of woods, in many places of the Realm," (Theatr. 505); and in Ger. Em. 409, it is stated to grow "In Lancashire, in Dingley wood six miles from Preston in Aundernesse; and in Harwood neere to Blackeburne likewise."—*Id.*

[The following is the Note referred to by Mr. Borrer.—"*Maianthemum bifolium*. This very pretty plant, recorded as British in the 'Annals' for January, is a rediscovery, and not altogether new to the British Flora. It has been already figured and recorded as English, but a long while ago. In Gerarde's 'Herbal,' 2nd book, 90th chap. p. 409, will be found a very characteristic portrait of it under the name of *Monophyllum* or *One blade*. He classes it with his *Wintergreenes* (Pyrolæ), and says "it groweth in Lancashire in Dingley Wood, six miles from Preston in Auldirnesse, and in Harwood near Blackburne likewise." "It floureth in May, and the fruit is ripe in September." Let the Lancashire botanists look out for it next spring. It is strange that Gerarde's notice of it should have escaped our older botanists; and stranger still, that in the Linnean Society's copy it is marked "*Convallaria bifolia*" in Sir James E. Smith's own handwriting, apparently without his having noticed the localities given for it below. In the south of Norway it is very abundant in pine-woods on a gneiss soil, and should be looked for in similar situations in the north of Britain.—EDWARD FORBES."—'Annals and Magazine of Natural History,' February, 1843, p. 158.—*Ed.*]

303. *Dicranum taxifolium and adiantoides*. Besides the characters given in 'Muscologia Britannica,' these two species are distinguished by the following peculiarities. *D. taxifolium* has the stem constantly unbranched, except perhaps at the very base; leaves linear-lanceolate, the upper margin presenting a regular unbroken curve line; peristome inserted considerably below the mouth of the capsule; calyptra with an inflexed margin at the base. In all these particulars *D. adiantoides* exhibits a perfect contrast, when not in a dwarf state: sometimes indeed the latter has simple stems, but the outline of the leaves would always be sufficient, of itself, to indicate the species. Moreover, the teeth of the peristome, in *D. taxifolium*, are more suddenly contracted above into long slender points, and they are beset

externally with prominent transverse bars. The texture of the leaves and of the capsule is more dense and opaque, and the perichæatial leaves and vaginula are considerably longer than in *D. adiantoides*. In a dried state also the two mosses have a different aspect, the foliage of *D. taxifolium* being less disposed to curl. I have never observed any such ambiguities as those which are pointed out by Mr. Sidebotham, (Phytol. 581).—*W. Wilson; Orford Mount, Warrington, May 5, 1843.*

304. *Dicranum osmundioides and bryoides*. The difference existing between these two species was long ago indicated by Meyrin, but his observations have been overlooked. The former of these two mosses has the calyptra mitriform, with the margin at the base inflexed. In *D. bryoides* the calyptra is constantly dimidiate, and the leaf has a colourless cartilaginous border; characters which would be amply sufficient to distinguish the two species, even if their mutual resemblance were greater than it is. They differ also in the form of the capsule, and in the shape of the leaves. I may here remark that the blending of these two species, in ‘*Muscologia Britannica*,’ is solely attributable to their not having been compared together with due deliberation. Some species, in order to be properly understood, must be patiently studied in a living state, and at various stages of growth. If such a method be observed, the student will have no difficulty in persuading himself of the validity of those distinctions by which *Polytrichum commune* is separated from *P. gracile*, *P. aloides* from *P. nanum*, and *Orthotrichum Rogeri* from *O. affine*.—*Id.*

305. *Calla æthiopica*, L. One evening in April my attention was forcibly drawn to this plant (then in the parlour, not covered by glass), as it was copiously distilling water from the tips of its leaves. The evening gave no signs of an atmosphere overcharged with moisture, and at night the stars shone with brilliance. The roots of the plant had been well supplied with water in the forenoon. Mr. Quekett’s admirable paper (Phytol. 218) recurred to mind, and I was induced to examine closely a phenomenon which presented itself to my notice for the first time, and in circumstances where I could not expect to see it. The exudation was observed on such leaves only as had the upper portion of the cylindrical points *faded* and *discoloured*, the line of demarcation between the faded and the living part indicating the spot where the fluid escaped; in every other respect the position of the outlet was altogether indeterminate, some leaves discharging their fluid at the base of the cylindrical point, others at a spot still lower down, and one at a considerable distance from the top, but close to the margin of the leaf, at a part which had become

discoloured. This led me to examine carefully the so-termed “marginal vein,” which proved to be an *open continuous channel* of peculiar structure, extending from the base to the top of the leaf, altogether different from the vascular tissue constituting the proper veins, but no doubt in communication with them, and serving as the recipient and conductor of the fluid conveyed by them from the root. It is sufficiently wide to admit a bristle, which may be passed up it without the aid of a lens. On cutting a leaf across with scissors, the fluid escaped from the midrib and veins, but less plentifully than from the marginal channels. One leaf, which had recently expanded, and had its cylindrical point unfaded at the extremity, did not give out any fluid, nor was there any escape from the flower: with a microscope I could not detect any pore or valve, such as is stated to exist in *Limnocharis Plumieri*; hence I am inclined to infer that the exudation does not take place, even in a close humid atmosphere, until some previous natural decay of the cylindrical point of the leaf. Those who have the means of proving the contrary are requested to pursue the enquiry. It may be proper to add that an escape of fluid was observed at the back of two of the leaves, whose extremities were so curled as to admit of a lodgment of the water in that position, and that a quantity of the fluid, collected on glass and suffered to evaporate, left behind it only faint traces of mucilaginous matter. The opinion entertained by some, that spiral vessels convey air and not fluid, will derive little support from an examination of this plant.—*Id.*

306. *On the buds of Robinia Pseudacacia.* One fine evening last summer, during one of those welcome intervals of relaxation which are afforded by the visits of an esteemed friend, we happened to stroll under the shade of this tree, when a happy collision of ideas directed our joint attention to its well-known property of suddenly putting forth its foliage, late in the spring, without any previous warning. On cutting across one of the petioles, near its base, with a sharp pen-knife, I was struck with the appearance of an open cavity lined with stiff white pubescence; and as there was no trace of an external axillary bud, it instantly occurred to us that this tree resembled *Platanus* in its mode of vegetation. Longitudinal sections of this part were forthwith submitted to the microscope, when lo! instead of a solitary bud, no less than three were contained in the hollow base of each petiole, one placed immediately below the other, the lowest in a state of less perfect formation. It remained to enquire, at the proper season, whether or not two of the three buds were abortive, and I have recently directed my attention to this matter. The uppermost bud,

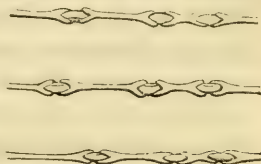
being the largest and most vigorous, is that which, in ordinary circumstances, develops itself into a branch ; but the one below it does certainly vegetate, and is visibly protruded from the cavity, so as to indicate a capability of immediately replacing the upper one, if that should be destroyed by frost or other accident. I wish some of your correspondents would examine other species, and also the *Platanus*. Professor Nuttall informs me that this mode of producing buds occurs in *Psidium*. May it not be a general property of tropical trees which do not form visible external winter-buds ?—*Id.*

307. *On the buds of Coniferæ*. Unlike dicotyledonous trees, which invariably produce a bud at the base of every leaf, either axillary or intra-petiolar, the *Coniferæ* have the greater part of their leaves destitute of buds, which are comparatively few, and scattered at distant intervals along the branches. On the axis of trees of this order, the branches exhibit a tendency to develop themselves in a peculiar manner, so that the tribe is characterised by the pyramidal or conical shape of the individuals belonging to it. No dicotyledonous tree, that I know of, produces its branches in whorls, such as we see in *Pinus* and *Abies*. Can any of your readers inform me of an exception to the rule in these genera ; and whether any other genus is conformable to it ? In *Larix* this tendency does not appear to exist ; it is not very obvious in *Taxus* ; and even in full grown trees of *Pinus sylvestris* it seems to be absent.—*Id.*

308. *Vinca major*. This appears to be one of the connecting links between the *Apocynaceæ* and the *Asclepiadaceæ*. No British author seems to have accurately described the pistillum, which has a very curious structure. The so-called stigma, described in Smith's 'English Flora,' although it bears considerable resemblance to a genuine stigma, cannot be considered to be such in reality, destitute as it is of stigmatic fluid, and moreover surrounded and fenced by a copious fringe of rough hairs forbidding the access of pollen. The style, with its appendages, is spindle-shaped, much and suddenly dilated in the thickened part, where there is a flattened edge nearly covered with a dense pubescence, under which is an orange-coloured reflexed membranous zone, covered with viscous fluid, and constituting, wholly or in part, the true stigma. The remainder of the style above the thickened part appears principally to serve the office of a pillar, to support a canopy formed of the crested extremities of the anthers, whose cells are lower in position than the stigma of *Smith*, but higher than the true stigma, the extent of which is somewhat doubtful. It may either comprehend the whole edge of the thickened part, which

has the pubescent zone imbued with the viscous fluid, abounding with active molecules, and easily diffusible in water; or it may consist only of the reflexed orange border underneath. The latter is rendered highly probable by the fact that pollen grains are constantly found attached to this part with their tubes fully developed, and some of them in positions scarcely accessible were it not for the curved form of the filaments, which give a favourable direction to the pollen as it falls from the anther. The central tissue, from this part to the base of the style, is composed of very slightly cohering oblong cells, of the same orange colour; and the whole may be compared to a funnel with a long narrow stalk, lying between two bundles of vascular tissue, which perforate the expanded part of the funnel on two opposite sides, and then pass up into the region above the true stigma, where they become greatly expanded and multiplied, so as to form a cylindrical congeries of spiral vessels, whose dark colour might lead to the supposition that they contained air, if it were not that there is no appearance of extricated bubbles on pressing portions of them when immersed in water. A portion of the placenta has the same orange tint, and is probably a continuation of the stigmatic tissue; but I sought in vain for pollen tubes in this region, and indeed they were not visible in the style, where they would have been so conspicuous had they been present. It may be that fecundation in this plant is of rare occurrence.—*Id.*

309. *On the glandular woody tissue of Coniferae.* The structure of the circular glands being still a subject of debate among physiologists, permit me to send you a drawing of a longitudinal section of pine wood, perpendicular to the medullary rays, exhibiting sections of the glands. By way of explanation, let the contiguous walls of two cells, otherwise in perfect contact, be supposed to be separated here and there by small lens-shaped blisters, which are perforated in the middle, and the cavity filled up with a yellowish nucleus, having a slight depression in the centre of each convex face, immediately below the aperture of the membrane. The drawing represents the object magnified 300 diameters.—*Id.*



Section of Fir wood (Deal),
Longitudinal and perpendicular to
the medullary rays; 300 linear.

310. *On the spiral porous cells in the wood of the Yew tree.* The representation of these, after Kieser, in Lindley's Introduction, ed. 2, does not agree with my own observations. The spirally lined woody cells I believe to be perfectly distinct from the small oblique glands which are supposed to be situated between the spires, and I consider

that the glands belong entirely to the medullary rays, on which they are placed obliquely, and somewhat prominent beyond the membrane composing the ray. They are much smaller than the glands of the woody tissue, and of different shape.—*Id.*

311. *Note on the Locality of Pæonia Corallina.* I observed this plant growing in the rocky clefts of the Steep Holmes, in the Severn, in the summer of 1836, but it was then nearly destroyed by destructive visitors. When first added to the English Flora by the late Sir Francis B. Wright, in 1803, he observed it growing in great plenty on the island. A solitary plant was some time since observed growing in the centre of a large wood near Bath, Somerset, by Miss Lonsdale; but I am informed it has recently been dug up. — *T. B. Flower* ; 8, *Surrey St., Strand, May 6, 1843.*

312. *Note on a new British Lichen.* I wish to communicate to botanists by 'The Phytologist,' the discovery of a lichen new to the British Isles, namely, the *Lecidea Wahlenbergii* of Acharius, which I found on Ben Nevis, Inverness-shire, last July, upon the west side of the mountain, about three parts up, above Loch Nevis. This will be a very interesting addition to the next edition of the 'British Flora.'—*Fred. Bainbridge* ; 2, *Beulah Place, Harrogate, Yorkshire, May 8, 1843.*

313. *Note on Bryum androgynum, Hedw.* As the time of fruiting is not stated in the description of this moss in 'English Flora,' and it appears from the remark—"Fruit —? very rare,"—to be of unfrequent occurrence in a fertile state ; I have thought that a notice of its discovery with capsules near London, would not be unacceptable to some of your readers. I found it in the early part of last April, with fruit not quite mature, growing on a shady bank on the south side of Abbey wood, near Erith, Kent, but in small quantity. Within a few feet was *Tetraphis pellucida*, also in fruit. — *W. Mitten* ; 91, *Blackman St., Boro, May 8, 1843.*

314. *Note on Centranthus Calcitrapa.* In your September No. (Phytol. 309) appeared a critique by Mr. Babington, on some of the contents of the last Edinburgh Catalogue of phænogamous plants. Among other subjects, allusion is made to *Centranthus Calcitrapa*, in the following words:—"This has but slender claims to be considered a British plant, as it has only been found, in a naturalized state, at Eltham (?) in Kent." I do not presume to question the opinion of this eminent botanist, as to the slight claims possessed by this plant to rank among our native productions. The note of interrogation probably implies a doubt as to the exact locality in which the plant

has been found; I have therefore to inform your readers, that I met with it growing abundantly on the walls of Eltham church-yard, Kent, and on the walls of several gardens to the east of the church, about the middle of last June. After reading Mr. Babington's remarks on the subject, I went again to Eltham, in order to trace out, if possible, the source from whence this plant found its way to the above station. A gardener, of many years' standing at Eltham, had often seen it growing there, on walls, and had sometimes known it to spring up, self-sown, in gardens near the old palace; but was not aware that it had ever been cultivated in any gardens adjoining the church. Its inconspicuous size would not render it a very great favourite for the flower-border. He thought it likely that it might have been cultivated in a botanic garden, which long ago existed near the church; and that it might have escaped thence to the neighbouring walls. It is noticed in the 'Flora Metropolitana,' as being found on old walls at Eltham, on the authority of Mr. Wm. Pamplin. I accordingly wrote to Mr. Pamplin about it, and give the following extract from his prompt and obliging reply. "It is at least twenty years ago when I first gathered the *Valeriana Calcitrapa* at Eltham." "It was to Mr. Hewett C. Watson's Botanical Guide that I communicated the particulars above referred to, and I suppose it was from thence copied into Cooper's 'Flora Metropolitana.' In my communication to Mr. Watson's Guide, I ventured to suggest that this plant (so admirably adapted, with its feathery wings, for dispersion) might have escaped from Sherard's botanical garden at Eltham, originally, which I still think was most likely the fact." At any rate, whether indigenous or not, or whether likely or not to become extensively disseminated, it is a pretty and interesting little plant, and worthy of a place in the herbaria of our metropolitan botanists; who will, I have no doubt, if they extend their excursions to Eltham, find it very plentiful on many of the old walls near the church.—*Wm. Ilott; Bromley, Kent, May 10, 1843.*

315. *On the habitats of Equisetum fluviatile.* We have now before us two accounts of the habitats of *Equisetum fluviatile*; and as the two are so much at variance, and as it appears to me that the habits of that plant are not well understood, I hope I shall not be thought presumptuous in offering a few remarks on the subject. In the first place, Mr. Newman tells us that the plant "affects loose gravelly and sandy places, unconnected with water," (Phytol. 533). In the second place, Mr. Watson states, that so far as his observations go, when the plant grows in corn-fields and other places out of water, it is always

short and stunted; on the other hand, he says that the finest examples he has met with, were in the counties of Chester and Lancaster, "*growing on the red marl*," (Id. 588). Mr. Watson also relates some strange tales about the Cheshire horses getting "bogged," in their endeavours to graze on the plant; and that he (Mr. Watson) has seen a horse almost over head in mud, in a small pond (perhaps a mud-pond) filled with the tall horse-tails. I do not wish to contradict Mr. Watson, but merely to say that *water* or *mud* is not essential to the luxuriant growth of *Equisetum fluviatile*. At Broad-bank, four miles from Coln, in Lancashire, in a plot of ground which is appropriated to the growth of potatoes, we have the plant growing much higher than the fences. At Midge Hool, near Todmorden, we have it growing very fine, in a wood. And I think I shall be correct in saying that the plant is not common in the ponds in Lancashire, as I have been in the habit of visiting them for the last sixteen years, and never met with it in any of them. In the Manchester Flora, it is said to grow in "moist woods and hedge-banks, common." In the Yorkshire Flora there are four stations for *E. fluviatile*,—two of them in woods, and one of the others by a road-side. Francis observes that "the name *fluviatile* is not so applicable to this species as it would have been to some of the others, as it is rarely found on the banks of rivers or in ponds, nor do I remember ever having seen it growing in water." Withering, Smith and Hooker, say the plant grows on the banks of rivers, lakes, &c. Something might be said on the red marl, but as 'The Phytologist' is no medium for Geology, I will omit that altogether. How far Mr. Watson may be correct when he says that horses will go almost over head in *mud* to get at the plant, I know not; all that I can say is, that so far as my own observations go, horses will not eat the plant at all, if they can get anything else. I have never met with the fronds injured by horses, though growing in fields where they frequently feed. Lightfoot states, on the authority of Haller, that the plant was eaten by the Romans; he also tells us, on the authority of Linnæus, that horses refuse it. As Mr. Watson's is the first account we have, by British writers, of *E. fluviatile* growing in water, it would be well if he could give us a description of that part of the stem which grows *under* water. — *Samuel Gibson; Hebden Bridge, May 10, 1843.*

316. *Note on Geranium nodosum.* Mr. Watson still leaves undecided the question as to whether a *Geranium* which he has in his herbarium was gathered wild near Halifax, (Phytol. 588). In reply to that question I would say, that if the plant be one which *I* sent to

Mr. Bowman, it was gathered wild something less than two miles from Halifax, and is CERTAINLY *G. pyrenaicum*. The specimen I now enclose is the same as the one I sent to Mr. Bowman; and if that gentleman sent Mr. Watson some other, I know nothing of it. The specimen sent will serve to show how far I am correct in the name. After what has been said on this subject, it will be clearly seen that there is some mistake concerning this Geranium, but the question is, who is to bear the blame? Whoever may have made the mistake, I think Mr. Watson did wrong in publishing it, since he received the specimen under the name of *G. pyrenaicum*, and published it under that of *G. nodosum* in the first part of the New Guide, p. 278. In the second part, at p. 652, he says, "but I entertain scarcely any doubt as to the species;" and in 'The Phytologist,' p. 589, he says, "I THINK it *G. nodosum*." By this it will be seen that Mr. Watson does not know the plant, neither can he read the label, and therefore I think he ought not to have published it.—*Id.*

[It is evident that there is some mistake connected with the specimen of *Geranium nodosum* in Mr. Watson's possession, which it will now be difficult, if not impossible, to clear up. The specimen accompanying the above communication, is decidedly one of *G. pyrenaicum*; and it is labelled — "*Geranium pyrenaicum*. Washer-lane, near Halifax, 1830."—*Ed.*]

317. *Note on the Viviparous Grasses.* I am glad to see the subject of viviparous grasses taken up by Mr. Grindon (Phytol. 584), and will now give him the result of my observations on the *Festuca vivipara* of Smith. I have often been told that at a certain height upon our Yorkshire hills *Festuca ovina* is changed into the *F. vivipara* of Smith; and that Smith's *F. vivipara* is only a variety of *F. ovina*: this change, I was told, is effected by the damp atmosphere causing the seeds to germinate in the husk, before they fall to the ground. It had long puzzled me to know how it happened that the grass did not return to its natural form when growing at a lower elevation, as I have seen it cultivated in a garden for more than twenty years, and still retain its usual character—that of producing young plants instead of seeds. In June, 1842, I visited one of these hills (Fountains Fell) for the purpose of examining this grass; but on arriving at the place I did not find *all* the *F. ovina* changed into *vivipara*, but, on the contrary, there was an abundance of both, each retaining its usual character. Here I was under a second embarrassment, how to account for all this; however, I set to work, and got a number of specimens of *F. vivipara* and examined them, but not a single perfect flower was to be found: not one of those I examined had even the inner glume of the corolla,

and seeds were out of the question, as there were no organs of reproduction. I then collected a number of *F. ovina*, to try if I could find any of the flowers of that grass in a viviparous state ; and after I had examined them on the spot, I gathered specimens and brought them home, and examined them more minutely. This investigation convinced me that the two grasses are abundantly distinct, but how far they may be considered species, I shall leave to the better judgement of others. The two plants may be distinguished by the outer valve of the corolla of *F. vivipara* (when present) being more strongly ciliated on their edges, and, as Smith says, “keeled” on the back, not cylindrical as in *F. ovina*. The calyces are also strongly ciliated on their edges in *F. vivipara*, while, in *F. ovina*, they are, as Hooker describes them, subglabrous. I now enclose a specimen of each, and, by comparing them you will be able to see the difference.—*Id.*

318. *Note on Linaria Bauhinii.* It may be interesting to some of your readers to know that *Linaria Bauhinii* grows plentifully on the rocks of Coniston-water. It was discovered by John Roby, Esq., of Rochdale, in 1841.—*Id.*

319. *Note on Viviparous Grasses, &c.* I imagine that Mr. Grindon (*Phytol.* 584) takes the exception for the rule, in the matter of the viviparous grasses. That *Festuca ovina*, *ε. vivipara*, produces heads of young plants, is certainly true, indeed, if such were not the case, I do not see why it should be introduced into lists as a *variety* ; but, that the seeds of grasses do germinate in the husk in wet seasons, I think cannot be doubted, not only from the fact of the viviparous growth constantly taking place under such circumstances, in grasses and sedges also, but that it seems infinitely more probable than a change in the *nature* of the parts concerned. A circumstance came under my notice last year, which illustrates the effect of moisture on seeds while still in the seed-vessel. I collected some specimens of *Drosera rotundifolia* in flower, on Wimbledon common, and placed them in a Ward’s case. The plants thrived, and some time after I noticed on one of the heads, among the withered petals, a small green body. I watched this from day to day ; two cotyledons were gradually protruded from the capsule, and at last a leaf, having the peculiar circinate vernation. The little plant then withered away, of course for want of nourishment, Nature not having intended *Drosera* for an aerial plant : whereas if it had been part of the original plant, there is no reason why it should not have gone on producing leaves, since it was not interfered with in any way. I may mention that it was in a small case, and kept very wet. It is, however, quite worth while to settle the point concerning *grasses*, by *facts* ;

and I shall be happy to communicate anything bearing on Mr. Grindon's question, which may come under my notice.—*Arthur Henfrey; Bot. Soc. London, May 12, 1843.*

320. *Note on a Locality of Equisetum fluviatile.* In my Reigate Flora I have recorded a single station for this plant, "on Reigate Hill, south side of the Wray lane, far from any water." This lane branches off from the Brighton road through Croydon and Reigate, at the turnpike-gate on Wray common, perhaps a mile and a half north-east of the latter town, and, after a gradual ascent in a north-westerly direction, joins the Brighton road through Sutton on the top of Reigate hill. Many years ago, the late Alderman Waithman, who then had a country house on Wray common, opened a pit close to Wray lane, on its south side, for the purpose of quarrying the upper green-sand, which was sent to London to be used as hearth-stone. After a short time, from various causes, the quarry was abandoned, but not until a high mound of loose sandy rubbish had accumulated at the entrance. About the year 1836, when I visited Reigate after a few years' absence, I found this mound covered with a most luxuriant crop of *Equisetum fluviatile*, looking like a fir-wood in miniature; the plants were two and three feet high. The locality is a very dry one; the nearest water is the large pond in Gatton park, and that is quite half a mile distant, and considerably below the spot in point of elevation. I do not remember having met with this plant in or near water, but Mr. Hott has recorded a locality at Norwood, where it grows on a bank "and about a small pond close by," (*Phytol.* 295). — *Geo. Luxford; 65, Ratcliff Highway, May 15, 1843.*

321. *On the arrangement of a Herbarium.* Excellent as my friend Mr. King may find his plan for the arrangement of a herbarium (*Phytol.* 585), prejudice in favour of a different one makes me think it open to one or two objections; and as it is highly desirable that a collection should be commenced upon a good system, inasmuch as changing it afterwards is attended with much inconvenience, allow me to suggest the following plan to your correspondent. Let every species have a separate folded sheet of white paper, and each genus a sheet of folded blue,* placing the former inside the latter, like drawings in a portfolio, all the creases or folds of the sheets being to the left hand. The name of the genus should be written on a slip of white paper, and pasted near the fold of the sheet, at equal distance from top and

* The exact size is immaterial, but it should not be smaller than foolscap nor larger than double folio post, which is ample, under skilful management, for any plant, to say nothing of the expense and unwieldiness of very large paper.

bottom. If *printed* labels are used, so much the better. By this means a genus can be found immediately, it being merely necessary to raise the sheets *seriatim* at their folds, with the fingers of the right hand, and glance over the labels. The names of the species should be written on the corresponding part of the white papers, which can be run through in the same way as the blue ones, when a particular plant is wanted; and thus we are never under the necessity of opening several papers when but one is required, nor liable to have the attention diverted from the object in view. The genera may be grouped together in sections, classes, or natural orders, according to the taste of the owner. Where British plants only are collected, the Linnæan system is unquestionably the better one to follow; but for the more extensive herbaria, which contain both indigenous and exotic plants, the natural arrangement* is decidedly preferable. The groups of genera should be tied together in fasciculi, a piece of stout blue pasteboard, an inch larger each way than the papers, being placed both at top and bottom, and *broad* white tape used for tying, to prevent any danger of cutting either paper or pasteboard. On the upper pasteboard should be fastened a slip of paper, containing the names of the orders, classes or genera comprised in the fasciculus. If there are *several* orders in the fasciculus, which it may be desirable to keep separate, pieces of thinner pasteboard may be used for that purpose. By giving a whole sheet to a species, any number of specimens may be successively introduced on *half sheets*, without intruding on space that can ill be spared, as must be the case in a *book* of limited size; for surely no modern botanist is content with a single specimen of any plant, and that probably only in flower. In a good collection, not only is the *fruit* necessary, but, in many cases, the *foliage* in its different stages or conditions. Of *Tussilago Farfara*, for instance, five or six specimens at least are necessary to illustrate the plant; and with regard to trees, a much larger number is requisite. I possess a series of *Fagus sylvatica*, comprising about twenty specimens, the first showing the expansion of the leaf-buds, and their beautiful rosy perules, and the last the ripe fruit, and yet am incomplete as regards many of the intermediate stages. In ferns, grasses and Carices, the necessity of numerous specimens is too obvious to be urged upon any one. Now the constant accumulation of specimens, independently of species, surely must be sadly at variance with such a plan of arrangement as Mr. King's; whereas by tying them in fasciculi, as above de-

* As given, for instance, in Hooker's edition of Smith's 'Introduction to Botany.'

scribed, all that is required is white paper in half sheets, and tape to meet the increase of bulk. The present plan is, moreover, so compact, and the fasciculi are so mathematically uniform in superficial measurement (that is, if a little dexterity and judgment are used in the mounting, so as to let the thick heads of thistles, for instance, lie in the corners of the papers), that they will lie upon each other like folio volumes. Another advantage over the book system is that a series of genera and species can be taken out and laid side by side for comparison, and be easily replaced when done with. If I rightly understand Mr. King's method, the latter does not admit of this; at all events, it cannot be practised with equal facility. Where a cabinet, purposely constructed for holding plants, is possessed, of course tape and pasteboards are not required, the papers lying loose on their respective shelves. In this case I would, nevertheless, still pursue the plan of having genera and species in separate blue and white papers, as above described.—*Leo. H. Grindon; Manchester, May 16, 1843.*

322. *Mr. Babington's 'Manual of British Botany.'* We regret that we can do no more in the present number than announce to our readers the appearance of the above work, which we anticipate will ere long become the text-book and travelling companion of every British botanist. The generic and specific characters are of necessity condensed; but, judging from our hasty glance through the book, they appear to be clear and explicit, and are evidently drawn up with constant reference to the most recent information contained both in continental works of standard authority, and the British scientific journals. We must defer a regular notice until next month.—*Ed.*

ART. CXLIX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

May 19.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Donations to the library were announced from the American Academy of Sciences, Philadelphia, from the President, from Col. Jackson, Mr. Hogg, and Mr. E. Doubleday. British plants had been received from Mr. Edwin Lees and Miss Twining; and a collection of specimens from Western Australia, was presented by Mr. John Turner. Mr. William Andrews presented specimens of varieties of *Saxifraga Geum*, collected at the Great Blasquest Island, coast of Kerry, Ireland, one specimen of which had the nectaries thickly surrounding the ovary. Mr. A. Henfrey exhibited specimens of *Leucostemum æstivum*, collected in Greenwich marshes. He also presented specimens of *Dentaria bulbifera*, collected at Harefield, Middlesex.

The following papers were read. "Notice of the discovery of two new species of British Fungi," by Dr. Philip B. Ayres:—*Peziza corticalis*, found on woodbine, be-

tween Stokenchurch, Oxfordshire, and Cadmore End; *Hystericum rubrum*, found on bean-stalks at Aston-Rowant and Tetsworth, Oxfordshire. Specimens were presented by Dr. Ayres. 2. "On the Groups into which the British Fruticose Rubi are divisible," by Mr. Edwin Lees, F.L.S., &c. This paper (which was illustrated by specimens and drawings) will be concluded at the next meeting, when a full report will be given.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

May 17.—J. S. Bowerbank, Esq., F.R.S. in the chair. Read, a paper from E. J. Quekett, Esq., "On the Nature of Vessels possessing longitudinal as well as spiral Fibres." Mr. Quekett stated that these vessels are not present in the majority of plants, and consequently have not been described until within the last few years. They have been found in plants belonging to very different orders, by various observers, and it is not improbable that future investigation may detect them in many other plants than those in which they have hitherto been observed. Thus they have been found by Schultz in *Urania speciosa*, by Mr. W. Wilson in *Typha latifolia*, in a plant of the gourd kind by Mr. Hassall, and by Mr. Quekett in *Loasa* and in *Canna bicolor*. In exogens these vessels do not appear to be either of the length or diameter they are in endogens, in which they seem to constitute the largest and longest of the vessels. In *Loasa* they do not exceed the $\frac{1}{300}$ of an inch in diameter, while in *Urania* and *Canna* they are nearly the $\frac{1}{100}$. In their structure they have a general resemblance to ordinary spiral vessels, having very frequently two or more fibres forming the same screw coiled in the interior of the vessel, as in compound spiral vessels. In addition to this spiral arrangement, there are longitudinal deposits of fibres whose number varies considerably, some vessels not having more than six or eight, while more than double that number may be detected in the larger vessels. Upon applying force, these longitudinal fibres are broken at the same point as the membrane, the broken edges of which project beyond the edge of the spiral ribband to which the vessels are reduced. Their terminations are very pointed, and they are applied to each other for some considerable space. At first Mr. Quekett supposed these vessels to be perfect of their kind, presenting higher marks of development than the true spiral vessels; subsequent observations however have enabled him to discover that a vessel presenting this longitudinal deposit of fibres, is only in a state preparatory to the complete development of a vessel exhibiting oval or quadrangular dots on its parietes: and he observes that although a tendency to produce longitudinal fibres may be seen in other annular and spiral vessels, it is only in the compound spiral that the ultimate conversion of a spiral vessel into one with dots regularly arranged in longitudinal fibres occurs. This is quite in accordance with the observations of Mohl and Schleiden, which prove that the spiral is the earliest type of every other form of vessel, whatever phases they may afterwards assume. He also described the various steps by which the spiral vessel becomes an annular one, and the reticulated vessel one with dots; and showed that the vessels forming the particular subject of this paper, are some of those in progress towards the dotted condition, as in some instances, in *Canna bicolor*, the various steps of this process can be witnessed in different parts of the same vessel. He concluded with some observations upon the dots on the vessels in woody exogens, showing that these last are of a more complex structure than those formed by the mere rounding of the meshes of the reticulated vessel.—*J. W.*

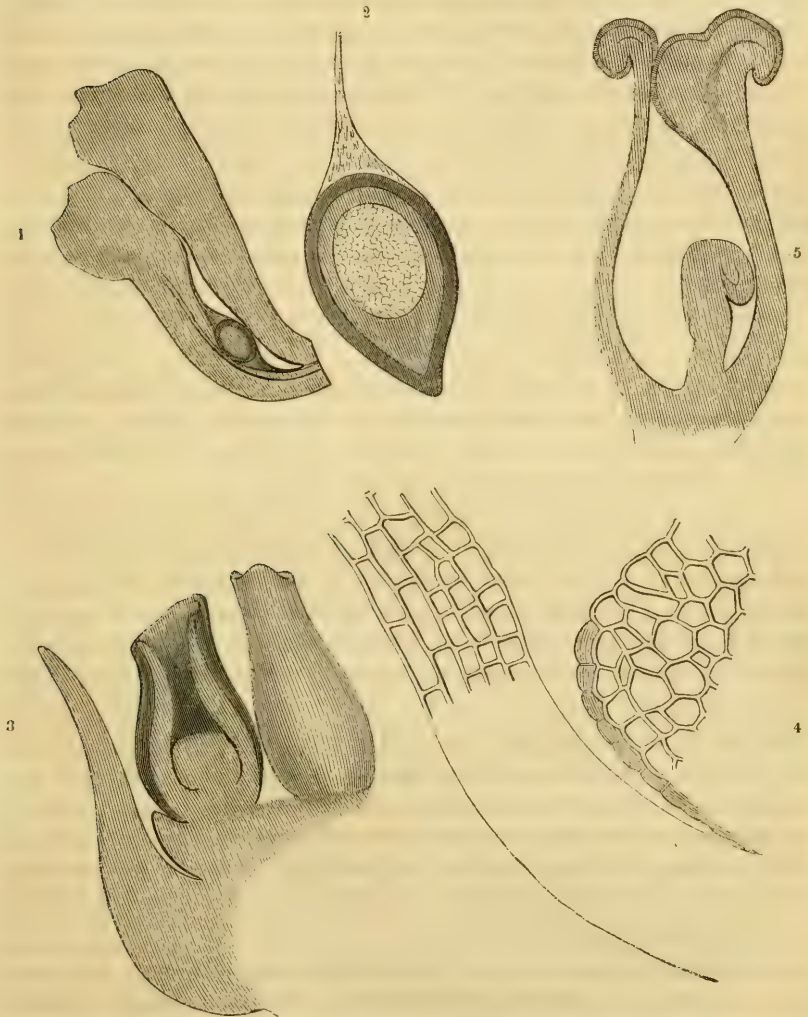
THE PHYTOLOGIST.

No. XXVI.

JULY, MDCCCXLIII.

PRICE 1s.

ART. CI. — *Researches in Embryogeny.* By W. WILSON, Esq.



1 and 2, Longitudinal sections of the ovule of *Pinus sylvestris*. 3, Longitudinal section of the ovule of *Juniperus communis*. 4, Section of the nucleus, and a portion of the integument of *Juniperus communis* (magnified 300 times). 5, Longitudinal section of the pistillum and ovule of *Berberis vulgaris*. All the figures are more or less magnified.

HAVING lately seen the articles on this subject by Schleiden, and by Mirbel and Spach, in the 'Annales des Sciences Naturelles,' published in April and May, 1839, it has been my wish to examine for myself how far the former of these writers had any foundation for his opinions. Hitherto I have not met with any evidence in favour of the doctrine which teaches that the vegetable embryo consists of a portion of the pollen-tube which has penetrated the nucleus. The account given by Corda (see Lindley's 'Introduction,' ed. 2, p. 550) may possibly be correct as applied to the spruce fir, which I have not yet examined, but it can scarcely be applicable to *Pinus sylvestris*, where I find the nucleus surrounded by three different integuments, each of them destitute of a foramen; so that all direct communication of the pollen-tube with the nucleus appears to be impossible: it would even admit of a doubt whether the ovule in this case is really naked, and whether there be not a carpellary membrane (continuous with the stigma-like expansion at the summit of the ovule) surrounding the nucleus and its proper integuments. The innermost of the three membranes is a very thin pellicle (*sac of the embryo* of Adolphe Brongniart), scarcely if at all attached to the surrounding parts. A longitudinal section of the ovule is given at fig. 2 (p. 625). The action of the pollen has not yet been observed.

A genuine example of a naked ovule may be seen in *Juniperus communis*. Here the nucleus consists of a roundish mass of uniform cellular tissue, not enclosed in a pellicle, and with only one integument, which is open at the top; so that there is nothing to prevent the pollen-tube from penetrating the nucleus. It must, however, be remarked, that the nucleus has no ready-formed cavity (*embryostome*) for the reception of the pollen-tube, and thus far the observations of Corda seem to be inapplicable. The like structure exists in *Thuja occidentalis*. Unfortunately, I cannot pursue the enquiry; as the male plants of both are inaccessible to me at this time. Fig. 3 (p. 625) represents a longitudinal section of the ovule of *Juniperus*; at fig. 4 is shown another actual section (exceedingly thin) of the nucleus, with a portion of the integument, carefully copied from nature, magnified about 300 times.

In *Berberis vulgaris* there are some interesting features. The ovary is a cavity, imperfectly closed at the top by the stigma. There is no proper style, and no central stigmatic tissue; so that if any pollen-tubes are formed, they must pass at once into the ovary, and into the foramen of the ovule: but it is not yet ascertained that any

pollen-tubes are produced.* When the pollen-grains are immersed in water, they speedily burst and discharge the fovilla from their sides. At fig. 5 (p. 625) is shown a longitudinal section of the pistillum, with one of the ovules at the base of the ovarium. It will be seen that the stigmatic surface is continued into the cavity of the ovarium, on that side which is most swollen.

In this plant the elastic valve of the anther fulfils an important function, which seems to have been overlooked. The stamen is not happily represented in Lindley's 'Introduction,' ed. 2, pl. 4, fig. 11. It is placed behind the filament, and is lower than the stigma; but the valve, on turning up, also twists round towards the stigma, its cavity being filled with nearly all the pollen, which is thus brought to a level with the stigma, ready to be applied to its surface the instant that the filament is excited below.

W. WILSON.

Warrington, May 31, 1843.

ART. CLI. — *A History of the British Equiseta.* By EDWARD NEWMAN. (Continued from p. 594).

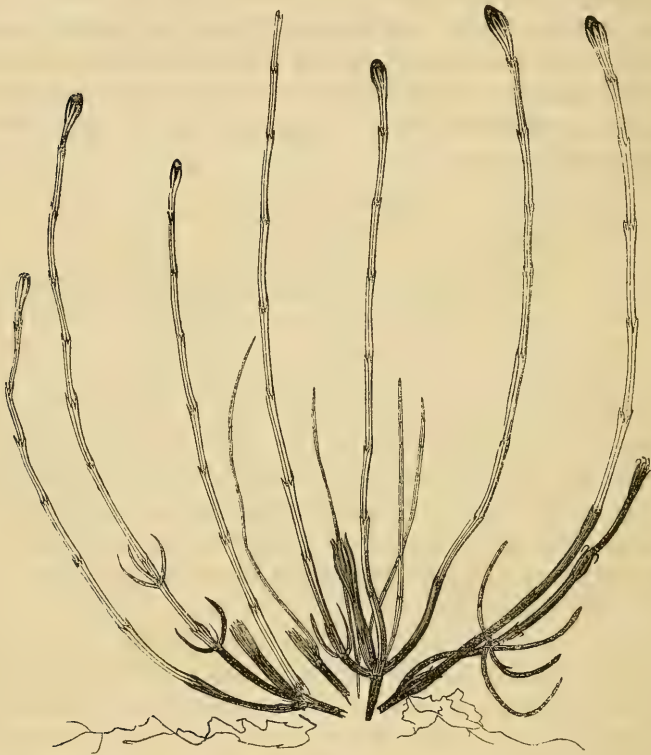
EQUISETUM PALUSTRE, VAR. NUDUM, (Gibson, MSS.)

THIS form of the plant is widely but sparingly distributed. I am indebted to Miss Griffiths for specimens from Braunton Burroughs in Devonshire, to Dr. Greville for others from the sands of Barry, and to Mr. S. Gibson for the loan of others from Aldingham, Yorkshire, and Broadbank, Lancashire; to these Mr. Gibson has attached the MS. name of "var. *nudum*."

This plant, as will be seen from the figure (p. 628), differs principally from the normal form in being without branches, or nearly so, the occurrence of a few scattered ones being occasional only, and constituting the exception rather than the rule. I can scarcely wonder that botanists should have referred such a plant to the preceding rather than the present species: this is the case in all the herbaria I have examined, excepting Mr. Gibson's, which came into my hands just as the present paper was going to press, but in time to incorporate a notice of it, and adopt the proposed name.

* On further examination it appears that the pollen-grains do produce tubes; and that the stigmatic fluid is of a resinous nature, and does not mix with water.—W. W. June 16, 1843.

The specimens vary considerably in size as well as general appearance: those from Scotland, Yorkshire and Lancashire are very small, the stems not attaining on the average more than a length of two inches: those from Devonshire are somewhat larger, the figure represents a Devonshire specimen of the natural size, and I have seen others of a still more luxuriant growth. Some of the examples are erect, others prostrate, and those which grow on sand-banks have the roots densely fibrous.



Equisetum palustre, var. *nudum*, Gibson, MS.

After a careful examination of this plant I am unable to find any characters whereby to distinguish it as a species from *E. palustre*: — the root, stem, sheaths and catkins seeming to me identical with those of the species to which I have referred it.

I cannot conclude my account of this species without thanking those botanists who have kindly given me their opinions on the nomenclature of the British species of *Equisetum*: the aggregate of these opinions is in favour of the changes I have proposed. I observe in Dr. Diedrich's 'Deutschlands Kryptogamische Gewächse,' published since my notes on the Linnean herbarium, that the author has adopted the nomenclature given below.

E. limosum, Diedrich, = the polystachion variety of *E. palustre*, Linneus? A doubt may arise whether the polystachion variety of *palustre*, Linn., or *fluviatile*, Linn., be intended.

E. fluviatile, Diedrich, = *E. fluviatile*, Linn. and *E. limosum*, Sm.

E. Telmateja, Diedrich, = *E. Telmateja*, Ehrh., *E. eburneum*, Roth, and *E. fluviatile*, Smith.

E. umbrosum, Diedrich, = *E. umbrosum*, Meyer, and *E. Drummondii*, Hooker.

The other names correspond with those in Smith's 'English Flora.' As Dr. Diedrich makes no reference to my observations on this subject, and indeed could scarcely, by any possibility, have seen them, I think his publication may be received as further testimony in favour of the changes in question, and it certainly confirms my intention of adopting them, notwithstanding the expressed disapprobation of two eminent botanists, Mr. Watson (*Phytol.* 587), and Mr. Babington, (*Manual*, 379).^{*} These gentlemen are themselves authorities in nomenclature, and their decisions are received with a respect to which mine are not entitled; I therefore use no judgment of my own, knowing that it would not be received as authority: but having shown the species described by Linneus under the name of *fluviatile*, that described by Ehrhart under the name *Telmateja*, and that described by Willdenow under the name *umbrosum*; and finding no descriptions prior to these since the establishment of the binominal nomenclature; I revert to the names given by these authors as *a matter of course*, not one in which I have any right to exercise a judgment or opinion of my own. I may however add, that Mr. Watson's remarks on the *habitats* of *E. fluviatile*, *Smith*, somewhat startle me: the inference to be drawn from half-a-dozen letters now before me, is, that the plant in question not only *does not* but *cannot* grow in water; but as none of these are intended for publication, I forbear naming the writers. In the confusion of names is it not possible that there is also a confu-

^{*} Wahlenburg, in his 'Flora Lapponica' (1812), clearly points out Smith's error.—Fl. Lap. 298.

sion of plants, and that Mr. Watson's fluvatile and my fluvatile are one and the same plant, and that we both adopt the Linnean nomenclature?

In my former observations I made no allusion to the *Equisetum Drummondii* of Sir W. J. Hooker, because no specimen of this plant exists in the Linnean herbarium, to which alone my remarks were confined: but the same species appears to have been long known as a native of Europe, by the name of *Equisetum umbrosum*. The name was for some time MS. only, and is given as Meyer's MS. name. However, in 1809, the species was regularly characterized by Willdenow, in his 'Enumeratio,' p. 1065; and again by the same author in his 'Species Plantarum' (1810), v. 3: and it also appears with a minute description in Vaucher's 'Monographie des Prêles,' published in the first volume of the 'Memoires de la Société de Physique &c. de Genève.' The description is accompanied by very exact figures of the fertile and barren fronds, and of a branched frond surmounted by a catkin, a very common but not constant form of the species.* In all these instances the name of *umbrosum* is given without any other synonyme, or any implied doubt as to its correctness.

EDWARD NEWMAN.

(To be continued).

ART. CLII.—*A Flora of the neighbourhood of Sandringham, Norfolk.*
By JAMES E. MOXON, Esq.

(Continued from p. 601).

<i>Corylus Avellana</i> . Hedges, frequent.	<i>Salix cinerea, aquatica, oleifolia</i> . Comn.
<i>Fagus sylvatica</i> . Hedges, occasionally.	— <i>caprea</i> . Wolferton wood, common.
<i>Quercus Robur</i> . Common.	— <i>riminalis</i> . Frequent.
<i>Betula alba</i> . Frequent.	— <i>alba</i> . Not uncommon.
<i>Alnus glutinosa</i> . Rather uncommon.	<i>Populus alba, tremula & nigra</i> . Not unc.
<i>Urtica urens</i> . Occasionally.	<i>Callitriche verna</i> . Watery places, pools, &c. abundant.
— <i>dioica</i> . Plentiful.	<i>Salicornia procumbens</i> . Wolferton marsh, beyond sea-bank, occasionally.
<i>Parietaria officinalis</i> . Old walls, frequent.	— <i>herbacea</i> . Ditto, abundant.
<i>Humulus Lupulus</i> . Hedges, occasionally.	<i>Atriplex portulacoides</i> . Ditto, abundant.
<i>Ulmus campestris</i> . Not frequent.	— <i>patula</i> and <i>angustifolia</i> . Waste ground, frequent.
<i>Myrica Gale</i> . Dersingham and Rising heaths &c. abundant.	— <i>laciniata, littoralis</i> . Wolferton sea-bank, common.
<i>Salix argentea</i> . Dersingham heath, local.	
— <i>repens, fusca, prostrata</i> . Heaths &c. common.	

* See Vaucher's Monographie, plate iv. figs. 1—4.

- Chenopodium Bonus-Henricus*. Dersingham common, not uncommon.
 ——— *album*. Abundant.
 ——— *maritimum*. Wolferton salt marsh, common.
Rumex obtusifolius. Abundant.
 ——— *sanguineus*. Ingoldsthorpe comn.
 ——— *Hydrolapathum*. Ditches, Rising common.
 ——— *Acetosa*. Meadows &c. frequent.
 ——— *Acetosella*. Dry places, common.
Polygonum amphibium. Ditches, Rising common.
 ——— *Persicaria, Lapathifolium*. Fr.
 ——— *Hydropiper*. Rather rare.
 ——— *Aviculare*. Abundant.
 ——— *Fagopyrum*. Fir-wood enclosure, Sandringham.
 ——— *Convolvulus*. Frequent.
Scleranthus annuus. Frequent.
 ——— *perennis*. Sandringham heath, near the church; Wolferton beach.
Erica Tetralix. Moist places, abundant.
 ——— *cinerea*. Dry heaths, very abundt.
Calluna vulgaris. Ditto.
Vaccinium Oxycoccus. Dersingham, Babingley and West Newton; Rising common &c., abundant.
Primula vulgaris. Rather uncommon.
 ——— *veris*. Not so frequent as the preceding.
Hottonia palustris. Ditches, Rising com.
Lysimachia vulgaris. Ditch-banks, Rising common.
Anagallis arvensis. Sandy fields, common.
 ——— *cærulea*. Cultivated fields at Sandringham, very rare.
 ——— *tenella*. Fens and watery hths. abundant.
Centunculus minimus. Rising common, local.
Glaux maritima. Wolferton salt-marsh, frequent.
Samolus Valerandi. Rising common, not unfrequent.
Ilex Aquifolium. Hedges, rare.
Cuscuta Epithymum. Dersingham and West Newton heaths, occasionally.
- Convolvulus arvensis*. Common.
 ——— *sepium*. Osier beds, hedges &c. frequent.
Campanula rotundifolia. Heaths &c. abt.
 ——— *Trachelium*. Castle Rising, also at Bawsey.
Jasione montana. Dersingham common.
Lonicera Periclymenum. Wds. and hedges frequent.
Sambucus nigra. Frequent.
Viburnum Opulus. Wolferton and Sedgeford woods.
Sherardia arvensis. Dersingham comn. fr.
Galium cruciatum. Wolferton, frequent.
 ——— *palustre*. Watery places, frequent.
 ——— *saxatile*. Heathy ground, abndt.
 ——— *uliginosum*. Watery places, comn.
 ——— *verum*. Heathy ground, ext. com.
 ——— *Mollugo*. Bushy heaths, occasly.
 ——— *Aparine*. Hedges, common.
Eupatorium cannabinum. Babingley, Snettisham &c. common.
Tussilago Farfara. Frequent.
Petasites vulgaris. Rising common, also at Sedgeford, of an immense size.
Aster Tripolium. Wolferton salt-marsh, common.
Erigeron acris. Shernbourne and Fring, sparingly.
Bellis perennis. Abndnt. almost everywh.
Solidago Virgaurea. Dersingham heath, abundant.
Inula dysenterica. Wolferton, Babingley, &c. common.
Anthemis Cotula. Common.
 ——— *arvensis*. Frequent.
Achillea Ptarmica. Common.
 ——— *Millefolium*. Abundant.
Matricaria Chamomilla. Frequent.
Pyrethrum Parthenium. Ditto.
Chrysanthemum Leucanthemum. Ditto.
 ——— *segetum*. Wolferton, not uncommon.
Artemisia maritima. Wolferton sea-bank, frequent.
 ——— *Absinthium* and *vulgaris*. Freq.
Gnaphalium uliginosum, minimum and *germanicum*. Common.

- Senecio vulgaris*. Very common.
 — *sylvaticus*. Near Sandringham chalk-pit, plentifully.
 — *Jacobæa*. Heaths, roadsides, &c. abundant.
 — *aquaticus*. Roydon fen, common.
Carlina vulgaris. Sandringham chalk pit, common.
Centaurea nigra. Very frequent.
 — *Cyanus*. Cornfields &c. freqt.
 — *Scabiosa*. Frequent.
Cnicus lanceolatus. Ditto.
 — *palustris*. Common.
 — *arvensis*. Abundant.
 — *pratensis*. Dersingham heath.
 — *acaulis*. Sandringham chalk-pit, plentifully.
Onopordum Acanthium. Near Sandringham chalk-pit, rather sparingly.
Carduus nutans and *acanthoides*. Comn.
 — *Marianus*. West Newton, 1838, a single plant.
Aretium Lappa. Common.
Lapsana communis. Ditto.
Cichorium Intybus. Castle Rising, &c. fr.
Leontodon Taraxacum. Abundant.
Apargia hispida. Ditto.
 — *Taraxaci*. Sandringham chalk-pit, plentifully.
Tragopogon pratensis. Meadows &c. freqt.
Picris hieracioides. Castle Rising; also at Refley wood; not uncommon.
Crepis virens. Common.
Sonchus arvensis. Wolferton wood &c.
 — *oleraceus*. Very common.
Hieracium Pilosella. Sandy banks, very common.
Dipsacus sylvestris. Hedges, frequent.
Scabiosa succisa. Common.
 — *arvensis*. Roadsides &c. comn.
 — *columbaria*. Sandringham chalk-pit, 1842; Sedgford.
Valeriana rubra. Walls of Sandringham park, not wild.
 — *dioica*. Back of Wade-moor wood, Sandringham.
 — *officinalis*. Refley and Wolferton woods, plentiful.
- Plantago major* and *media*. Frequent.
 — *lanceolata*. Common.
 — *maritima*. Wolferton salt-marsh, common.
 — *Coronopus*. Sandringham, freqt.
Statice Armeria. Wolferton salt-m. abdt.
 — *Limonium*. Ditto, common.
Echium vulgare. Sandringham, Dersingham, &c. very common. In 1838 this plant covered half an acre of ground in one locality, presenting to the eye a mass of the most vivid blue.
Lithospermum arvense. Fields near Sandringham chalk-pit; sparingly.
Myosotis palustris and *cæspitosa*. Comn.
 — *arvensis*. Sandy places, common.
Symphytum officinale. Common.
Cynoglossum officinale. Hedges &c. com.
Mentha hirsuta. Common.
Lycopus europæus. Ditto.
Salvia Verbenaca. Sandringham, West Newton &c. frequent.
Thymus Serpyllum. Very common.
 — *Acinos*. Frequent.
Prunella vulgaris. Very common.
Scutellaria galericulata. Common.
Nepeta Cataria. Hedges, frequent.
Glechoma hederacea. Common.
Lamium album. Common.
 — *purpureum*. Very common.
 — *amplexicaule*. Occasionally.
Galeobdolon luteum. Wolferton wood.
Galeopsis Tetrahit. Common.
 — *versicolor*. Wolferton heath.
Stachys sylvatica and *palustris*. Common.
Betonica officinalis. Frequent.
Marrubium vulgare. Sandringham, frequent; also at Hunstanton.
Ballota nigra. Common.
Teucrium Scorodonia. Heathy sandy places, very abundant.
Ajuga reptans. Moist shady places freqt.
Verbena officinalis. Dersingham common, very frequent.
Utricularia vulgaris. Ditches near the river, Rising common, abundant.
Pinguicula vulgaris. Wade moor; Dersingham & Ingoldsthorpe fens, co.

Orobanche minor. Clover-fields, Babingley common.

Verbascum Thapsus. Roadsides, old walls &c. frequent.

—— *nigrum*. Frequent.

—— *pulverulentum*. About Ingoldsthorpe and Snettisham, common.

Scrophularia nodosa and *aquatica*. Freqnt.

Antirrhinum Cymbalaria. Occasionally.

—— *Linaria*. Frequent.

Digitalis purpurea. Occasionally.

Veronica Beccabunga. Common.

—— *Anagallis*. Wade moor.

—— *scutellata*. Babingley fen, abdt.

—— *officinalis*. Heaths, abundant.

—— *Chamædrys*. Heaths and shady places, abundant.

—— *serpyllifolia*. Frequent.

—— *montana*. Sandringham heath, occasionally.

—— *agrestis*. Cultivated ground, co.

—— *arvensis*. Walls of Sandringham church-yard &c. abundant.

—— *hederifolia*. Frequent.

Euphrasia officinalis. Very common.

Bartsia Odontites. Dersingham heath, co.

Pedicularis palustris. Dersingham and Roydon fens, common.

—— *sylvatica*. West Newton heath, frequent.

Rhinanthus Crista-galli. Frequent.

Solanum Dulcamara and *nigrum*. Freqnt.

Hyoscyamus niger. Roadsides: Dersingham, Sandringham, West Newton &c. occasionally.

Erythræa Centaurium. Sandy ground, frequent.

Menyanthes trifoliata. Dersingham and Roydon heaths, common.

Ligustrum vulgare. Hedges, frequent.

Fraxinus excelsior. Ditto, common.

Pinus sylvestris. West Newton heath, common, young plants, self-sown.

Galanthus nivalis. Sandringham park, abundant, covering about a quarter of an acre; if not wild, at least completely naturalized.

Iris Pseudacorus. Ditches &c. plentiful.

Orchis bifolia. Dersingham heath, Roydon fen, common.

—— *Morio*. Moist grassy places, com.

—— *latifolia*. Frequent.

—— *maculata*. Common.

Gymnadenia conopsea. Wade moor, 1842, abundant.

Epipactis palustris. Ditto, ditto.

Listera ovata. Ditto, common.

Allium ursinum. Wolferton wood, com.

Scilla nutans. Wolferton wood &c. abdt.

Narthecium ossifragum. Fens; Dersingham, West Newton, &c. abundant.

Convallaria majalis. Wolferton wood, abt.

Ruscus aculeatus. Sandringham woods, not common.

Butomus umbellatus. Rising common, plentiful.

Sagittaria Sagittifolia. Ditto, common.

Alisma Plantago. Common.

—— *ranunculoides*. Dersingham, Ingoldsthorpe, Rising & Roydon fens, common.

Juncus conglomeratus, *effusus*, *squarrosus*, *bufonius*, *lampocarpus*. Common.

—— *maritimus*. Wolferton salt marshes, sparingly.

—— *uliginosus*. Frequent.

—— *acutiflorus*. Very common.

—— *obtusiflorus*. Ditches, Ingoldsthorpe common, abundantly.

Luzula pilosa. Wolferton wood, frequent.

—— *campestris*. Heaths, dry meadows and woods, abundantly.

—— *congesta*. W. Newton fen, sprngly.

Tamus communis. Hedges and woods, occasionally.

Arum maculatum. Common.

Typha latifolia. Ditches, ponds, &c. com.

Sparganium ramosum. Ditches, Rising common &c. common.

—— *simplex*. Ditches near the river, Rising common, abundantly.

Ruppia maritima. Ditches, Wolferton marsh, abundant.

Potamogeton natans. Fens, abundant.

—— *gramineum*. Ditches, Wolferton marsh and Rising common.

- Triglochin palustre*. Frequent.
 ——— *maritimum*. Wolferton salt-marsh, frequent.
- Lemna minor*. Pools, ditches &c. abundnt.
- Phalaris arundinacea*. Ditches &c. com.
- Holcus lanatus*. Meadows &c. very com.
- Anthoxanthum odoratum*. Pastures, com.
- Alopecurus pratensis*. Pastures, abundnt.
- *geniculatus*. Moist mdows. co.
- Phleum pratense*. Pastures &c. abundant.
- *arenarium*. Snettisham beach, co.
- Agrostis Spica-venti*. Cornfields, occas.
- *canina*. Oakwood, West Newton fen.
- *vulgaris*. Dry places, abundant everywhere.
- *alba*. Oakwood, W. Newton fen.
- Aira cristata*. Walls of Sandringham churchyard.
- *aquatica*. Frequent.
- *cæspitosa*. Wolferton wood &c. co.
- *præcox*. Common.
- Avena fatua*. Dersingham lth., sparingly.
- *pratensis*. Pastures and bushy places, common.
- *flavescens*. Pastures &c. common.
- Hordeum murinum*. Roadsides, frequent.
- *maritimum*. Wolferton salt-marsh, common.
- Lolium perenne*. Meadows, pastures and seashore, abundant.
- Triticum junceum*. Snettisham, frequent, also at Hunstanton.
- *repens*. Common.
- Poa pratensis*. Meadows, common.
- *annua*. Very abundant.
- Briza media*. Wade moor, Sandringham chalk-pit, plentiful.
- Melica cærulea*. Bogs, plentiful.
- Glyceria aquatica*. Ditches, common.
- *fluitans*. Common.
- *rigida*. Sandy ground, walls of Sandringham churchyard, common.
- Glyceria procumbens*. Snettisham beach, very common.
- Triodia decumbens*. Dersingham heath, frequent.
- Dactylis glomerata*. Common.
- Cynosurus cristatus*. Very common.
- Festuca loliacea*. Meadows &c. frequent.
- *pratensis*. Common.
- *elatior*. Sandringham chalk-pit, sparingly.
- *sylvatica*. Hedges and woods, co.
- Bromus mollis*. Pastures &c. very comn.
- *asper*. Hedges, occasionally.
- *sterilis*. Fields and waysides, co.
- Arundo Phragmites*. Woods and watery places, abundant. [ton fen.
- *Epigejos*. Oakwood, West New-
- Eriophorum vaginatum*. West Newton fen, rare.
- *polystachion*. West Newton and Dersingham fens, occasionally.
- *angustifolium*. Fens, very common.
- Scirpus cæspitosus*. Dersingham fen, freq.
- *maritimus*. Wolferton salt-marshes &c., abundant.
- *setaceus*. Rising common, locally.
- *glaucus*. Wolferton salt-marshes, sparingly.
- Eleocharis palustris*. Not common.
- Rhynchospora alba*. Dersingham fen, co.
- Schænus nigricans*. Ditto, ditto.
- Carex remota*. Ditch-banks, Dersingham, occasionally.
- *arenaria*. Near Sandringham chalk-pit, abundantly.
- *pilulifera*. Rising common, freqnt.
- *flava*. Frequent.
- *præcox*, *panicea* and *riparia*. Common.
- *ampullacea*. West Newton fen, Rising common, frequent.

I must here remark, that owing to want of opportunity, the genera *Salix* and *Carex* have not been so fully investigated as might be wished.

Species collected beyond the limits of the above Flora.

- Nuphar lutea*. Ditches between Lynn and Downham, common.
- Sanicula europæa*. Reffley wood, near Lynn.
- Eryngium maritimum*. Hunstanton sea-shore.
- Sium latifolium*. Ditches, marsh-land, abundant.
- Cœnanthe Phellandrium*. Ditto, ditto.
- Smyrniolum Olusatrum*. Lanes and hedges at Hunstanton, frequent.
- Meum Fœniculum*. Hunstanton, Sedgeford &c. common.
- Hippuris vulgaris*. River Nar, back of the Priory, Castle Acre, common.
- Cheiranthus fruticosus*. Ruins of Castle Acre Priory, abundant.
- Cakile maritima*. Hunstanton sea-shore, common.
- Helianthemum vulgare*. Hunstanton chalk cliffs.
- Althæa officinalis*. Ditch banks, marsh land near the sea.
- Arenaria peploides*. Hunstanton sea-shore, common.
- Rosa arvensis*. Hedges nr. Sutton bridge, frequent.
- Sedum reflexum*. Walls at Castle Acre, common.
- Sempervivum tectorum*. Cottage roofs nr. Wisbeach, frequent.
- Fagus Castanea*. Hedges near Liteham.
- Saponaria officinalis*. Wet hedges at Pentney, near Gayton, sparingly.
- Salsola Kali*. Hunstanton sea-shore, co.
- Daphne Laureola*. Sedgeford wood.
- Polygonum acetosum*. Sutton bridge, sparingly.
- *maritimum*. Hunstanton sea-shore, local.
- Convolvulus Soldanella*. Ditto, ditto.
- Apargia hirta*. Sutton bridge, frequent.
- Origanum vulgare*. Chalky banks, comn.
- Thymus Calamintha*. Castle hill, Castle Acre, abundant.
- *Nepeta*. Chalky banks, Sedgeford, near Snettisham, not uncommon.
- Atropa Belladonna*. Field-banks at Reffley wood, near Lynn, occasionally.
- Erythræa pulchella*. Sutton bridge, comn.
- Villarsia nymphæoides*. River and ditches between Lynn and Downham, com.
- Vinca minor*. Sedgeford.
- Typha angustifolia*. Sedgeford wood, com.
- Poa compressa*. Walls of Castle Acre Priory, &c. common.
- Arundo arenaria*. Sea-sh. Hunstanton, co.
- Elymus arenarius*. Ditto, frequent.

JAMES E. MOXON.

Leyton, Essex, December, 15, 1842.

ART. CLIII. — Notice of Books relating to British Botany.

1. *The British Flora: in Two Volumes. Vol. I., containing the Phænogamous or Flowering Plants and the Ferns.* By SIR WILLIAM JACKSON HOOKER, K.H., LL.D., F.A.S. & L.S., ETC. ETC. *The Fifth Edition, with Additions and Corrections, and numerous Figures illustrative of the Umbelliferous Plants, the Composite Plants, the Grasses and the Ferns.* London: Longman & Co. 1842. 8vo.
2. *The Geographical Distribution of British Plants.* By HEWETT COTTRELL WATSON. *Third Edition, Part 1.* London: printed for the Author. 1843. 8vo.

3. *Manual of British Botany, containing the Flowering Plants and Ferns, arranged according to the Natural Orders.* By CHARLES C. BABINGTON, M.A., F.L.S., F.G.S., ETC, ETC. London: Van Voorst. 1843. 12mo.

IN our last number we briefly mentioned the appearance of two of the works whose titles stand at the head of this article: in the present notice we believe we cannot do better than combine with these a third, and to class them all under one general head; since the geographical distribution of plants and their correct discrimination are branches of botanical science as inseparable as they are important and interesting. A botanist is always anxious to ascertain not only the name of a plant and its place in the system; he also wishes to make himself acquainted with its native country, its general geographical range, and every circumstance connected with its habitats and localities, together with the various conditions of climate and altitude under which it occurs. Such information relative to our native species will be conveyed in Mr. Watson's treatise on 'The Geographical Distribution of British Plants,' of which the first part, containing the Ranunculaceæ, Nymphæaceæ and Papaveraceæ, is now before us. The author has been for many years engaged on this subject; the two treatises previously printed by him having been but the precursors of the present admirable work, wherein his views are more fully developed, and the results of his researches stated in a more extended form. Its scope and design will be best shown by extracts from the "Preliminary Explanations."

"The first object to be accomplished in the following pages, is that of bringing together, under a methodical form, those facts which are calculated to assist in showing both the general range and local habitats of such plants as are reputedly indigenous, or pretty well naturalised, in the island of Great Britain and its islets immediately adjacent, from Scilly to Shetland."—p. 2.

The plants of Ireland are necessarily excluded, there not being on record sufficient data to enable the author to illustrate the geographical relations of the flora of that country. The Channel Isles are in like manner excluded, because they are considered to belong more properly to France than to this country: "all their indigenous plants being apparently common to those islets with France, while several of them are unknown among the native plants of England."

"After bringing together such data as may be found conveniently within the author's reach, for exhibiting the ascertained distribution of each species considered by itself, it will then become comparatively easy to add illustrative maps, statistical tables, and more comprehensive and generalised views respecting those various physical conditions which are apparently most influential in determining the present distribution

of the plants. To this end, it is unquestionable that copious and accurate details are necessary in the first place, and before the aid of maps and tables can be called in for the sake of explicitness and precision in conveying to others the knowledge so acquired. Interesting as it may be in itself to many minds, the public value of that knowledge must be measured by the degree in which it can tend to elucidate the causes of vegetable distribution; since it is only by first ascertaining those causes that we can reasonably expect to render the knowledge beneficially applicable to human affairs. But much time may yet elapse before any such application of knowledge can be made.

“Notwithstanding the long-accumulated stores of individual facts relating to the indigenous plants of this country, and to the particular localities for the rarer species, as well as many full lists of the plants of single counties or other definite tracts; and notwithstanding the lively impulse which has of late years been given to such enquiries, we are still sadly short of accurately observed facts that bear directly upon the ultimate object here proposed. The facts not having been observed or recorded with reference to any such end, they have consequently been, so far as that end is concerned, too often only inadequately observed and recorded; the most valuable or interesting circumstances having been either noticed insufficiently or wholly passed over.”—p. 3.

We regret that we cannot follow the author into all the details of the plan of the work, which, however, we trust will be rendered intelligible by such brief explanatory remarks as our limits will allow us to give. First as to the botanical arrangement:—

“The so-called Natural System of arranging plants determines the order in which they will be spoken of in these volumes, and which will be very nearly that of Decandolle’s *Prodromus*. Nature’s own system of practical arrangement is clearly a geographical one; but for the convenience of technical botanists, it has been deemed more advisable to follow the abstract system, by which plants are supposed to be united into groups according to general resemblances.”—p. 5.

The nomenclature is that of Hooker’s ‘*British Flora*,’ fifth edition, with occasional references for synonyms to the works of Smith, Gray, Withering and Hudson. “No species will be introduced into this work as indigenous, unless the author has seen specimens alleged to be of British growth.” As examples of “the difficulty of tracing any abrupt line of separation between the two classes of native and naturalised plants,” the six following trees are mentioned;—the birch, the beech, lime, sycamore, chesnut and walnut: the first of these being “truly indigenous,” and the last “certainly introduced.” The author asks, “between which two, among the remaining four intermediately placed names, must we draw the line that divides the naturalised from the native species?”—and remarks that it would be difficult to obtain a unanimous decision on this question: the difficulty would consequently be greater in the case of the common plants of our gardens, corn-fields, road-sides and sea-shores.

At the head of each species are two diagrams; one being "a miniature map of Britain, divided into eighteen districts," which are numbered in regular order from south to north; the other exhibits "the absolute and comparative heights attained by the highest hills of the respective districts." By the omission of the figures from the spaces in the first diagram corresponding with districts in which the species has not been observed, a pretty exact idea of its ascertained range is given; the same course is pursued in the diagram of altitudes. These diagrams are intended as index-maps to others on a larger scale.

Immediately under these diagrams are the following details. 1. The name of the species, with synonyms, if any. 2. An enumeration of the districts in which the species has been ascertained to grow. 3. An enumeration of such of twenty local Floras and thirty catalogues in which the species is mentioned. 4. Enumeration of localities from which specimens of the species are preserved in the author's herbarium. 5. Uncertain localities. 6. Distribution of the species in Britain. 7. General distribution. 8. Localities ranged under the various districts, collected from different sources.

We regret exceedingly that we cannot give copious extracts from the author's highly interesting remarks on the general distribution of the plants belonging to the three natural orders treated on in the present part: but with two more quotations we must conclude.

"Ranunculaceous plants are very widely distributed over the surface of the globe. They were found—in the typical form of the order, the genus *Ranunculus*—on all the arctic and polar coasts visited by Sir Edward Parry and other northern voyagers; even under the highest latitudes attained, as in Melville Island and at the northern extremity of Spitzbergen. They are still to be seen at the contrary extremes both of the old and new worlds, about the Cape of Good Hope and the Straits of Magellan; and they have also been gathered on the islands of the Southern Pacific, in New Holland, Van Dieman's Land, New Zealand, &c. Between these remote positions representatives of the order may be found in every part of the world, numerous in cold and temperate climates, but much more sparingly scattered over intertropical countries. Within and about the tropics, the plants of this order are chiefly seen on the mountains, although not invariably so."—p. 22.

In Steudel's *Nomenclator* are enumerated about 78,000 species of phanerogamous plants; of these 830 species, or about a 94th part of the whole number, are Ranunculacæ. Mr. Watson thinks that this proportion may possibly be too high, in consequence of "the species of this order being better known than are those of several other orders prevalent within the tropics, or in the southern hemisphere." The proportion relatively to other flowering plants, is highest in high northern latitudes, but the greatest absolute number of species is found in the more temperate latitudes of the northern hemisphere. In

Britain the Ranunculaceæ constitute about a 48th part of the whole phanerogamic flora.

“The beautiful plants which are included by systematic botanists under the order of Nymphæaceous plants, and are sufficiently familiar to most persons under their common name of Water-lilies, are distributed less generally over the world than the former order, that of Ranunculaceous plants, or than the succeeding one, consisting of the Poppies, and allied genera. Yet, looking to the small number of distinct species comprehended in it, the present order may still be said to have a wide distribution. Being mostly large aquatic plants, adapted to grow in lakes and the less rapid rivers, the species of Nymphæaceæ are the ornaments of continental countries and low places; and are usually banished from islands and elevated mountains, as well as from very cold latitudes whose waters remain frozen during a large part of the year. Hilly or undulated countries, however, whose streams are converted into lakes or lake-like rivers on their low plains and in their valleys, may be considered favourable for the support of water-lilies; and we consequently find that our own insular position does not prevent Nymphæaceæ constituting quite as large a proportion of the indigenous flora of Britain, as is ordinarily the case with the floras of continental countries.”—p. 174.

We have stated that this work is printed for private distribution only; it will appear from time to time as the materials may become ready, and is offered to those botanical friends who have assisted the author in his investigations on that department of botanical science to which it relates. The author has adopted this course from an unwillingness to give such a pledge for the completion of the whole, as would be implied by the publication of a part, of a work which must necessarily run to so voluminous an extent. Whilst we cannot but respect the honourable feeling which prompted this course, and admire the liberality with which it has been carried out, we must also regret that such a store of valuable information on this exceedingly interesting branch of the science, should not be rendered accessible to every student of the Botany of this country.

Let us now proceed to make a few observations on the two other publications the titles of which we have given above. We have but little doubt that on the first announcement of Mr. Babington's intention to add another to the numerous works on British Botany already existing, there was a feeling in the minds of many botanists that such an addition to their libraries was not required, or, at least, that so much having been effected in advancing our knowledge of British plants, a new Flora must necessarily be no more than a compilation. But that a new Flora was not uncalled for at the present time, and that it was not impossible for such a work to be something more than a mere compilation, will, we trust, be rendered evident by a hasty

glance at the previously published general Floras of this country, commencing with the *magnum opus* of Sir J. E. Smith, in 1828.*

Although arranged according to what it has lately been the fashion to disparage by the appellation of an antiquated and useless system, the 'English Flora' will never be superseded as a work of standard authority on the botanical productions of Great Britain. Whatever may be its faults, they are doubtless attributable to the state of Botany in England at the period when it was written, and are infinitely outnumbered by its merits, which are its own, and have been justly acknowledged by all subsequent writers on Botany. The appearance of a work of such high authority, in the English language, gave a new impulse to the study of British plants, and laid the foundation for the more exact discrimination of our native species; unfortunately, however, its bulk and consequent price placed it beyond the reach of many a humble but ardent student, who was obliged to rest content with the more accessible and more portable 'Compendium Floræ Britannicæ,' if he understood Latin — or with Galpine's 'Synoptical Compend,' Macgillivray's Withering, or the 'Compendium of the English Flora,' if his literary acquirements extended only to the English language. All these were exceedingly useful books, to the travelling botanist more especially; but the three of the highest authority — the Compendiums — laid claim to little more than the merit of being correct indexes to the larger works. In 1830 appeared the first edition of Hooker's 'British Flora,' intended, as the author says in the preface, "1stly, to provide the young student with a description of our native plants, arranged according to the simplest method; and 2dly, to afford to the more experienced botanist, a manual, that should be useful in the field as well as the closet." The first object was gained by the adoption of the Linnæan method; the second, by happily steering a middle course between the two extremes of devoting so much space to the descriptions and synonyms as would increase the bulk of the book, or so curtailing the characters that they would scarcely be available for specific discrimination by the majority of those for whose use the work was intended. That the idea was a happy one, and on the whole well worked out, can scarcely be doubted, when we consider that within about ten years from its first appearance, four large editions of the 'British Flora' in its original form have been disposed of; but we must confess that we do greatly

* The first volume of Smith's 'English Flora' was published in 1824, but the work was not completed until 1828, when the fourth volume appeared, accompanied by a reprint of the preceding three volumes.

doubt both the policy and the expediency of the recent change in the arrangement of the work, unaccompanied by corresponding improvements in the matter, of which more anon.

In addition to the works above named, which are all arranged according to the Linnæan system, and have all gone through several editions, we may here mention two others, in the arrangement of which the natural system was followed; we allude to Lindley's Synopsis and Macreight's Manual. All these different publications have, however, more or less the air of compilations; their respective authors or editors having probably supposed that as so much had already been effected in British Botany, nothing more was required, than perhaps just to register any new species or variety that might by chance offer itself to their notice; such an event as the appearance of an *original* British Flora being deemed beyond the bounds of possibility. The publication of Leighton's 'Flora of Shropshire' we believe to have had some effect in dispelling this illusion; at all events it would naturally lead to the reflection, that if in the Flora of a single county so many improvements could be effected by the exercise of a little original observation, it were not unreasonable to suppose that a patient and careful investigation of the general Flora of the kingdom, would yield a rich and abundant reward to the botanist who should undertake the task.

The state of botanical science in Britain, at the period when Mr. Babington first commenced his investigation of our Flora, and its probable causes, are thus described in the Preface to that gentleman's Manual.

"From the attention which has long been paid to the elucidation of the Flora of Britain, and the numerous excellent botanists who have, since the time of the justly celebrated Ray (not to go further back), employed their talents upon an endeavour to determine the indigenous products of these kingdoms, the author, in common it is believed with most English botanists, did not suppose that much remained to be done in British Botany; for he could not expect that after the labours of such men as Smith, Hooker, Lindley, and others, and the publication of so invaluable and unrivalled a collection of figures as is contained in the 'English Botany,' there could still be many questions concerning the nomenclature, or any considerable number of unascertained species, the determination of which would fall to his lot. He had not however advanced far in the critical examination of our native plants, before he found that a careful comparison of indigenous specimens with the works of eminent continental authors, and with plants obtained from other parts of Europe, must necessarily be made, for it appeared that in very many cases the nomenclature employed in England was different from that used in other countries, that often plants considered as varieties here were held to be distinct species abroad, that several of our species were only looked upon as varieties by them, and also that the mode of grouping into genera was frequently essentially different.

“The discovery of these facts produced considerable astonishment, and the author was led to consider what could have been the causes of so remarkable a discrepancy. The following appears to be the most probable explanation. It is well known that at the close of the last century Sir J. E. Smith became the fortunate possessor of the herbarium of Linnæus, and was thus enabled to ascertain, with very considerable accuracy, the British species which were known to that distinguished man, and to publish, in the most improved form that he had given to his system, a remarkably complete and excellent Flora of Britain. Then followed the long-continued separation of this country from France, and indeed from most of the European nations, by which we were almost completely prevented from observing the progress which botanical science was making in other countries, and at the same time our own flora was continually receiving accessions of new plants which it was nearly impossible to identify with the species detected and published in France and Germany. At the conclusion of the war we had become so wedded to the system of Linnæus, and it may even perhaps be allowable to add, so well satisfied with our own proficiency, that, with the honourable exception of Mr. Brown, there was at that time scarcely a botanist in Britain who took any interest or paid the least attention to the classification by Natural Orders which had been adopted in France, and to the more minute and accurate examination of plants which was caused by the employment of that philosophical arrangement. Let it not however be supposed that the author wishes at all to detract from the value of the Linnæan system—a system which was considered by its author as merely a provisional arrangement or kind of index to the known plants; for no botanist has more strongly stated the value of a natural classification than Linnæus himself,—as he fully believes that without some such artificial scheme by which newly discovered plants could be catalogued for easy reference, the multitudinous species which distant countries have supplied would long since have formed so enormous and confused a mass as to have reduced Botany to a state little better than that into which it had fallen at the commencement of the Linnæan era.

“The publication of so complete and valuable a Linnæan work as the ‘English Flora,’ greatly contributed to the permanency of this feeling, and accordingly we find that at a very recent period working English botanists were unacquainted with any of the more modern continental floras, and indeed even now many of those works are only known by name to the great mass of the cultivators of British Botany.”—Pref. v.

It now remains for us briefly to enquire which of the two works before us is the most likely to have the effect of enabling the student of British Botany to take his stand by the side of the continental cultivators of the science, or at least to enable him to make some steps in advance of his present position. And here we feel that we are treading on dangerous ground; we feel that whatever is stamped with the authority belonging to so illustrious a name as that of the author of the well-known and widely circulated ‘British Flora,’ must be approached with caution, nay, almost with reverence; and that no rude hands ought to be laid on the structure he has raised. We should however be wanting in our duty as honest chroniclers, did we not state it to be our opinion, and we state it with regret, that the fifth edition of

the 'British Flora' is neither calculated to extend the fame of its author, nor in any considerable degree to raise the standard of botanical excellence in this country; it even, in many points, falls short of the actual state of knowledge of our native plants, existing in Britain at the period of its publication.

We believe that the numerous avocations of the author have been urged, even by his reviewers, in extenuation of sundry little blemishes, which those fond of such employment might hunt out in the former editions of the 'British Flora.' Such a plea, to a certain extent, we are quite willing to admit; at the same time we contend, that in the preparation of a new edition of a popular and really useful work, the public, who have so warmly patronized the earlier editions, have a right to expect that a little more care should be taken than appears to have been bestowed on this same fifth edition of the 'British Flora,' and certainly a little more regard for the researches of fellow-labourers would not have been altogether out of place. For instance;—if, instead of simply quoting the Edinburgh Catalogue as a mere list of synonyms, not worth the trouble of investigating, Sir William had been led by his doubts to a re-examination of the works of the continental authors whose nomenclature is there adopted, and had then thought it necessary to reject that nomenclature,—his reasons for doing so would have been heard with deference and respect. Again; as one example of Sir William's disregard of the labours of British botanists, may be mentioned the long-mooted question respecting the parasitism of *Monotropa*; which, in the period between the publication of the fourth and fifth editions of the 'British Flora,' was fully investigated and satisfactorily decided; yet we here find repeated the same words—"Root fibrous, parasitic?"—which have appeared in all the former editions of that work. Nor is any allusion made to another form of *Monotropa*, now found to be common in England, and apparently so distinct from *Hypopitys*, as to have been raised to the rank of a species by many botanists. A little more care would also have led to the detection and correction of numerous erroneous references to 'English Botany,' which have been perpetuated from first to last: like the old nomenclature for the ferns and their allies, which is retained with scarcely a single change. The book is, in fact, little more than the fourth edition newly arranged, that is, the natural system is followed instead of the Linnæan in the body of the work, with a Linnæan synopsis of genera prefixed: the preface even has not been rewritten in justification of this change of plan; a few sentences having been grafted on the old stock in reference to the use of the Linnæan

synopsis. We regret to have found occasion for this ungracious task of fault-finding, because we believe that Sir William could have done much better.

We will now turn to Mr. Babington's Manual, and see how nearly that comes up to the idea of what a new book on British Botany ought to be. The model chiefly followed in its preparation is Koch's '*Synopsis Floræ Germanicæ*;' but other standard works have also been consulted.

"In the present work it has been the author's endeavour to adopt, in all cases, those names which have the claim of priority, unless good cause could be shown for a contrary proceeding, and with this object he has carefully examined nearly all the best European Floras, comparing our plants with the descriptions contained in them, and in very many cases with foreign specimens of undoubted authenticity. In the adoption of genera and species an endeavour has been made, by the examination of the plants themselves, to determine what are to be considered as truly distinct, thus, it is hoped, taking Nature as a guide, and not depending upon the authority of any name, however distinguished. Still let it not be supposed that any claim is made to peculiar accuracy, nor that the author considers himself qualified to dictate to any student of Botany, for he is well aware that there are many points upon which persons who have carefully studied the subject may form different conclusions from those to which he has been led."—Pref. vi.

This is as it should be; and such, doubtless, was the plan adopted, so far as circumstances would permit, by Sir J. E. Smith, and by the author of the '*British Flora*' himself, in the preparation of the early editions of that work: there is, nevertheless, a greater amount of originality observable in the pages of the Manual, than in any general work on British Botany that has issued from the press since the publication of the '*English Flora*.' In a very few instances Mr. Babington has thought it better to rely more on the labours of his predecessors than on his own judgment, as in the difficult genera *Rosa* and *Rubus*, respecting which he expresses his obligations to the valuable monographs by Mr. Borrer, published in the '*British Flora*.' But, while studying the works of the great continental botanists, the author has not deemed it unnecessary to note what has been going on at home, and that, too, up to the latest possible date previous to the publication of his Manual; which is thus rendered more complete than it would otherwise have been. The orders and genera are necessarily defined as concisely as was consistent with perspicuity; but we should like to see, in a future edition, a general table of the orders and genera, arranged on the dichotomous or some other plan, prefixed to the volume, as well as the present Linnæan synopsis.

We must conclude with the following paragraph, which conveys the author's wishes respecting a future edition of his Manual.

"It is hoped that those who use this book will favour the author with information of any (even the slightest) addition, correction or alteration that may appear to be necessary, in order that it may be employed in the preparation of a future edition, as it is only through such assistance that the Flora of an extensive country can attain to even a moderate degree of perfection."—Pref. viii.

We think that the cause of British Botany could scarcely be better served than by the extensive circulation of this work, especially if its possessors are not sparing of either their criticism or their labour, the one in discovering and pointing out to the author any errors into which he may have fallen—the other in furnishing him with additional materials, the stock of which is as yet far from being exhausted.

ART. CLIV.—*Varieties.*

323. *List of Mosses found near Manchester.* I have pleasure in sending you the following list of mosses, growing within fifteen miles of Manchester. That it is by no means perfect I am willing to allow, as I have intentionally omitted several species recorded as growing in this neighbourhood, either on account of their exact localities not being given, or from the authority being sometimes questionable.

- | | |
|--|---|
| <i>Andræa alpina.</i> Hills above Staley bridge | <i>Anietangium ciliatum.</i> Hills above Staley bridge. |
| —— <i>Rothii.</i> Plentiful at Greenfield, Saddleworth. | <i>Diphyscium foliosum.</i> Greenfield and its neighbourhood. |
| <i>Phascum serratum.</i> Near Dukinfield, on hedge banks. | <i>Tetraphis pellucida.</i> Bredbury wood and Blakeley clough. |
| —— <i>alternifolium.</i> Hedge-banks on the Hyde road. | <i>Sphachnum sphaericum</i> and <i>mnioides.</i> Common on all the bogs. |
| —— <i>subulatum.</i> Very common. | —— <i>ampullaceum.</i> Clifton moss. |
| —— <i>axillare.</i> Found occasionally in various places. | <i>Weissia nuda.</i> Lower Broughton and Blakeley. |
| —— <i>patens.</i> Road-side, near Baguley Smithy. | —— <i>curvirostra.</i> Common on walls and rocks |
| —— <i>muticum.</i> Hobson found this species plentifully near Blakeley, but it has not been met with lately. | —— <i>recurvata.</i> Ashworth wood, near Heywood. |
| <i>Sphagnum obtusifolium</i> and <i>acutifolium.</i> Common in all the bogs in this neighbourhood. | —— <i>lanceolata.</i> Hedge banks, near Openshaw. |
| —— <i>squarrosum.</i> In boggy pits. | —— <i>controversa.</i> Walls & rocks, com. |
| —— <i>cuspidatum.</i> Pits near Ashton moss. | —— <i>cirrhatta.</i> Marple, common. |
| <i>Gymnostomum truncatulum.</i> Very common, and var. β . equally common. | —— <i>crispula.</i> Shawfurth moor, near Rochdale. |
| —— <i>fasciculare.</i> Greenfield &c. | —— <i>trichodes.</i> On stones at Greenfield. |
| —— <i>pyriforme.</i> Walls nr Hyde. | <i>Grimmia apocarpa.</i> On stones in the river Tame, near Staley, and at Marple. |

- Grimmia pulvinata*. Walls & rocks, com.
 ——— *Doniana*. Rowley moor, near Rochdale.
Didymodon purpureus. Marple.
 ——— *heteromallus*. Not uncommon.
 ——— *flexifolius*. Greenfield.
Trichostomum lanuginosum. Common on the hills near Mottram &c.
 ——— *canescens*. Greenfield.
 ——— *aciculare*. Greenfield, and near Rochdale.
Dicranum bryoides. Very common.
 ——— *taxifolium*. Ditto.
 ——— *adiantoides*. Bredbury wood and Blakeley.
 ——— *glaucum*. Baguley moor, and beyond Staley bridge.
 ——— *squarrosum*. Cotterill and Marple cloughs.
 ——— *scoparium*. Common.
 ——— *flexuosum*. Chat moss, and near Tildsley.
 ——— *varium*. Not uncommon.
 ——— *heteromallum*. Very common.
Tortula muralis and *ruralis*. Common.
 ——— *subulata*. Near Dunham &c.
 ——— *fallax*. Common.
Cinclidotus fontinaloides. Marple.
Polytrichum undulatum. Very common.
 ——— *piliferum*. Common near Mottram, and other places.
 ——— *juniperinum*. Dunham park.
 ——— *commune*. Baguley moor &c. very common.
 ——— *aloides*. Common.
 ——— *nanum*. Blakeley &c.
Funaria hygrometrica. Very common.
Orthotrichum pulchellum. On walls in Marple wood.
 ——— *anomalum*. Cotterill clough.
 ——— *diaphanum*. Dunham park.
 ——— *striatum*. Moors beyond Staley.
Bryum julaceum. Banks of the Irwell, near Clifton aqueduct.
 ——— *carneum*. Hills above Staley bridge.
 ——— *elongatum*. Greenfield.
Bryum argenteum. Common.
 ——— *pyriforme*. I found a specimen or two near Mottram, but cannot tell the precise locality.
 ——— *turbinatum*. Hills above Staley bridge.
 ——— *capillare*. Marple aqueduct, &c. common.
 ——— *cæspitum* and *natans*. Common.
 ——— *palustre*. Chat moss.
 ——— *roseum*. Cotterill clough, &c.
 ——— *ligulatum*, *hornum* and *punctatum*. Common.
 ——— *rostratum*. Tatton park.
Bartramia pomiformis. Chorlton fields, &c.
 ——— *fontana*. Baguley moor.
 ——— *arcuata*. Alderley, and near Staley bridge.
Neckera pumila. Cotterill clough, rare.
 ——— *crispa*. Marple, &c.
Anomodon curtispiculum. On stones at Greenfield, &c.
Daltonia heteromalla. Tatton park.
Fontinalis antipyretica. Pits near Gorton, Baguley moor.
 ——— *squamosa*. Marple, &c., com.
Hookeria lucens. Cotterill clough, and Mere clough.
Hypnum trichomanoides & *complanatum*. Cotterill & Marple cloughs, Hough-end, &c.
 ——— *riparium*. Bredbury wood, Hough-end, &c., common.
 ——— *undulatum*. Near Staley bridge, common.
 ——— *serpens* and *purum*. Very com.
 ——— *Schreberi*. Near Clifton aqueduct, and Marple.
 ——— *sericeum*. Hough-end hall.
 ——— *salebrosus*. Cotterill clough, ra.
 ——— *alopecurum*. Cotterill & Marple.
 ——— *dendroides*. Reddish vale.
 ——— *curvatum* and *myosuroides*. Cotterill clough.
 ——— *splendens*. Common in woods.
 ——— *proliferum*. Common, bearing fruit in Cotterill clough.
 ——— *prælongum*. Common.

<i>Hypnum flagellare.</i>	Greenfield, but not in fructification.	<i>Hypnum brevirostre.</i>	Not uncommon.
—— <i>piliferum.</i>	Cotterill clough.	—— <i>filicinum.</i>	About Marple &c. common.
—— <i>rutabulum.</i>	Very common.	—— <i>aduncum.</i>	Baguley moor, and near Bowdon.
—— <i>velutinum.</i>	Near the river Tame at Arden, and near Hyde.	—— <i>uncinatum.</i>	Marple aqueduct.
—— <i>albicans.</i>	Chorlton fields.	—— <i>commutatum.</i>	Bredbury wood &c. common.
—— <i>ruscifolium.</i>	Common in brooks.	—— <i>cupressiforme.</i>	Several very curious varieties are found in Bredbury wood, Cheshire.
—— <i>confertum.</i>	Bredbury wood and other places, common.	—— <i>molluscum.</i>	Near Marple, very common.
—— <i>cordifolium.</i>	Pits near Reddish.		
—— <i>triquetrum.</i>	Very common.		
—— <i>loreum.</i>	Greenfield.		

— *Joseph Sidebotham ; Manchester, March 16, 1843.*

324. *On the arrangement of a Herbarium.* Imagining that the plan I pursue in the arrangement of my herbarium is in some respects superior to that of Mr. King (Phytol. 585), I am induced to forward a short detail of it, in the hope that it may contain hints which may be of service to some of your readers. I ought to say, that although I have varied some of the details, I adopted the principle of the plan from seeing it carried out in the herbarium of a friend, which contained an extensive collection of both British and foreign species, kept in beautiful order. *Specimens.*— My specimens are fastened on sheets of folio post paper, of good texture, size $15\frac{1}{4}$ inches by $9\frac{1}{2}$. The specimens are fastened with gum Arabic on the inner right hand page of each sheet; and on the opposite one I write the name, order, and other particulars: I also write the botanical name at the top of the outside of the sheet. Before placing each species in its appropriate place in the herbarium, I wash it lightly over with a solution of corrosive sublimate in spirits of wine or spirits of turpentine, in the proportion of 60 grains of the former to 8 fluid ounces of either of the latter. *Arrangement.*— I arrange my specimens on the natural system; and for this purpose I have wrappers, each of half a sheet of double crown paper folded: on the outside of which is written the name of one of the natural orders; in this I place all the sheets of specimens belonging to that order. In the orders Rosaceæ, Compositæ, Gramineæ, and one or two others, it may be as well to subdivide each into two or three portions, and use a separate wrapper for each. The wrappers, with their contents, are placed in wooden boxes, made after the fashion of a music-case, namely, with a lid at the top, and the front hinged so as to fall down on a level with the bottom. I have these boxes made of the size of my paper, and $6\frac{1}{2}$ inches deep, which accommodates about 300 species in each case. As an index I

use the Edinburgh Society's Catalogue, affixing an asterisk in red ink to the name of each species in the herbarium. In this way the collection may be kept in beautiful order, and at all times in a state of readiness for convenient reference. — *Wm. L. Notcutt ; Fareham, June 2, 1843.*

325. *Friendly Hint to Subscribers.* I am very sorry to perceive, from the cover to 'The Phytologist' for June, that its circulation does not pay its expenses. Might I presume to suggest, that if each subscriber would endeavour to obtain, among his botanical friends, one additional subscriber, it would relieve the magazine from its difficulties, and continue to us a periodical which has hitherto been very interesting and useful, and which will, I trust, long maintain its standing.—*Id.*

326. *Note on Veronica Buxbaumii and V. triphyllos.* I enclose a specimen of *Veronica Buxbaumii*, and also one of *V. triphyllos*, both of which have been discovered this spring within two miles of York, the former in a clover field, the latter on a sandy bank. I observe that *V. triphyllos* is mentioned by Sir W. J. Hooker as being found in Yorkshire, though accompanied with a query. — *Silvanus Thompson ; Friends' School, York, 6th Month 5, 1843.*

327. *Note on the Habitats of Equisetum fluviatile, Sm.* I went the other day, with my friend Mr. Sparkes, to Norwood, and minutely examined the station where I found *Equisetum fluviatile* last summer. After reading the discordant statements which have lately appeared in 'The Phytologist' respecting the habits of this plant, we felt a desire to prove whether any specimens of it would be found actually *in* the water. It was growing most plentifully on the steep bank alluded to by me in the August number (*Phytol.* 295), but much more sparingly on the small piece of wet ground between that and the pond ; yet a few stems were found close to the water's edge. There was not, however, a single specimen that actually grew *in* the water. It is worthy of remark, too, that by far the most luxuriant specimens were those which grew on the bank ; those about the pond being much more stunted in appearance. All the authorities within my reach assign a station for *Equisetum fluviatile* near rivers and lakes ; but none speak of it as actually growing *in* water. I send you a specimen of my plant, to remove all doubts as to identity. The spot where it grows, is not more than a hundred yards from the top of Westow Hill, Norwood, going towards Dulwich.—*Wm. Ilott ; Bromley, Kent, June 5, 1843.*

328. *Note on Centranthus Calcitrapa.* The following notice of

Centranthus Calceitrapa is at your service, if you think it worth inserting among your Varieties. It is now fifty, if not sixty, years since I first saw this plant on a wall at Eltham, where it was well known to the London botanists, who, I believe, always thought it had escaped from Sherard's garden, and it was therefore considered a naturalized plant, not to be admitted into a British Flora. We also used, at the same time, to find it on the wall of a garden at Enfield, in Middlesex, which had formerly been that of Dr. Uvedale, the friend of Plukenet, in which was then a celebrated cedar of Lebanon. Not having been that way lately, I do not know the present state of the place.—*Edwd. Forster ; Woodford, June 6, 1843.*

329. *Note on Myosotis sylvatica.* I find *Myosotis sylvatica* growing abundantly in several ash plantations in this neighbourhood. It flowers throughout the month of May and the early part of June, and during this period makes a very splendid appearance. I have recently observed a beautiful variety with pure white flowers, which I think is not common; a specimen of it I now enclose. — *Thomas Bentall ; Halstead, Essex, June 7, 1843.*

330. *Note on Equisetum fluviatile*, Sm. It is highly desirable that the controversy respecting *Equisetum fluviatile* should be settled as early as possible, and surely there can be no great difficulty in the matter. About Manchester it is one of our *very common* plants, growing in woods, pastures, meadows, and moist gravelly banks, but I never yet met with it *growing in water*. The nearest approach to the latter habitat is in the wood below Arden Hall, Cheshire, where it flourishes *in a swamp*, to the height of six or seven feet. Now the branched state of *E. limosum*, which is not unlike *fluviatile* in general appearance, completely fills up many of the ponds in this neighbourhood, and I am therefore induced to think it possible that the two plants may sometimes have been confounded, and that thus the question as to the true habitat of *E. fluviatile* has originated. At Reddish, yesterday, I noticed a cow in one of the *limosum* ponds, eating off the tops of this species; but whether from a liking to the *Equisetum*, or to the *Glyceria fluitans* which was growing with it, I am unable to say.—*Joseph Sidebotham ; Manchester, June 9, 1843.*

331. *Note on Fragaria elatior.* I am almost inclined to believe that the authors of the various works on the British Flora, must have written their descriptions of *Fragaria vesca* and *elatior*, without having seen specimens of the latter. According to Sir W. J. Hooker, the hairs of the pedicels are closely pressed in *F. vesca*, but widely spreading in *elatior*; this is the only character given by which we are

to know the two plants apart. Dr. Withering gives no other, except size; and, if I remember rightly, Sir J. E. Smith is equally obscure on this point. When it is borne in mind that pubescence varies much with situation, the above character seems but a frail one to depend on, especially as there appears to me to be a far more striking distinction by which *F. elatior* may at once be recognised. In *F. vesca*, the petals are *white*, both in the *limb* and *claw*, and their *length* and *breadth* are about *equal*, the limb has *two slight notches*, and the *claw* is very *indistinct*. The petals in *F. elatior* are in length only equal to *two thirds* of the *breadth*; the *limb* is *white* and perfectly *entire*, the *claw* is quite *distinct*, and *bright yellow*. I found the two species growing together in Earl Bathurst's park, in this neighbourhood, and was much struck with the difference between them; the flowers of *F. elatior* are far handsomer than those of *vesca*. — *Alfred Knight; Cirencester, June 13, 1843.*

332. *Anemone Apennina found in Yorkshire.* I send you a specimen of *Anemone Apennina*, collected this spring in a wood near Otley, Yorkshire, by Miss Garnett. I am not aware of its having been found in this county before. — *Wm. Ainley; Bingley, June 20, 1843.*

333. *Note on Carex boenninghausiana, Weihe.* I have for some time past had in my herbarium two specimens of a *Carex* labelled *C. axillaris*, from Crichton Castle, Scotland. I had long felt considerable doubt whether they were properly referred to that species; though I was pretty certain they did not belong to *C. remota*, to which the Crichton Castle plants are referred by Mr. Edmonston, (*Phytol.* 407 and 522). A few weeks ago I had occasion to send my *Carices* to Mr. Gibson, of Hebden Bridge, for his examination, but without expressing my doubts of this species' being correctly named, as I did in several other instances. On their return, I found that Mr. Gibson had pointed out the differences between my plants and the descriptions of *C. axillaris* as given by Hooker, in the '*British Flora*,' and by Mr. Wilson and Dr. Wood, (*Phytol.* 299 and 300) as well as Mr. Leighton's figure of the fruit of *C. axillaris*. I now find that my plants are the *C. boenninghausiana* of Weihe, a species introduced to the notice of British botanists by Mr. Babington, in his lately published *Manual*. It has the habit of *C. axillaris*, but differs from that species chiefly in the nearly entire beak of the fruit being "serrated from *below* the middle," in the glumes about equalling the fruit, their midrib "not reaching the point," and in the bracts not being auricled at the base, but having a narrow brown ligule passing round the rachis. — *Geo. Luxford; 65, Ratcliff Highway, June 21, 1843.*

334. *Asperugo procumbens* a *Kentish Plant*. The cares and duties of the day being finished, I strolled out, a few evenings since, in the direction of the Abbey Wood, beyond Erith village, when after a lengthened ramble in the neighbourhood of Plumstead, and towards Plumstead church, I chanced to meet with a plant I had never before seen, and had not hoped to find in this county, namely, the extremely scarce and interesting *Asperugo procumbens*, *Linn.* It occurs sparingly in one or two places in a narrow bushy lane, part of the foot-way leading from the marshes at the Thames-side to Plumstead church-yard. The plant appeared to have been somewhat injured — probably through the late almost incessant rains — but was in other respects very luxuriant and beautiful. Irvine, in his ‘London Flora,’ mentions the *Asperugo* as having been found in Essex, but, if I remember rightly, does not give any recently verified habitat for it. This notice is sent for publication in ‘The Phytologist,’ simply from a sincere desire to add an humble mite of information to the general record already contained in the pages of that most useful periodical; and therefore I should be exceedingly sorry to find that my having done so should lead to the *eradication* of this rare plant, in what I believe to be its only known station in Kent. The *Asperugo* is fragile and delicate, and, like its congeners, *Lycopsis*, *Lithospermum*, and other *Boragineæ*, loses its beauty sadly in drying.—*Edward Edwards*; *Bexley Heath, Kent, June 22, 1843.*

ART. CLV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

May 11, 1843.—Dr. Neill, President, in the chair. John Kirk, Esq., was elected a resident fellow. Mr. Brand read a communication from Dr. Joseph Dickson of St. Helier's, Jersey, respecting some recent discoveries in the Flora of that island.

Dr. Neill communicated an interesting letter from Mr. Brackenridge, who was at one time a journeyman in the experimental garden here, and now holds the post of botanical curator at Washington. We insert full excerpts from his letter, the more readily, that his successful career may encourage others of his profession to similar exertions. Mr. Brackenridge writes:—"I spent the first fourteen months in the United States very much to my satisfaction, as foreman to Mr. Buist, who has one of the largest plant establishments in America. When the South Sea expedition was organised, I was induced by Mr. Poinsette, the Secretary of War, to accompany it in the capacity of Assistant-botanist and Horticulturist. The voyage lasted nearly four years, and my compensation during the last three years was 1200 dollars per annum. The squadron (under the command of Lieutenant Wilkes) on its way out touched at Madeira, the whole of which we scoured. I ascended the Peak of Ruive (6246 feet high) almost

to its very summit. It is covered with dense forests of *Erica arborea* and *Mediterranea* (which some travellers have called *Pine trees*). Several of these heath trees are forty feet high, and at eighteen inches from the ground their stems are two feet in diameter,—*E. Mediterranea* always the largest. At the very summit is a small species (perhaps new), in habit like Mr. M'Nab's *E. ramulosa*. The Madeira mahogany (*Laurus Indica* and *fetans*) is in great abundance, and as large as English oaks. In five days we collected 460 species of plants on the island. At the Cape de Verds, *Rubiaceous* annuals and grasses were the principal plants found. But Brazil, at which we next touched, may be denominated the head-quarters of Flora. I went about 150 miles inland, in a N.E. direction, from Rio de Janeiro, travelling most of the way through forests of flowering trees, fantastically adorned with innumerable parasitical and epiphytal plants. These trees were often propped up by aerial roots, which reminded one of the rigging or stays of a ship. The undergrowth in such places consists of palms, arborescent and many other ferns, with a goodly number of *Solanaceous* and *Rubiaceous* shrubs. The Organ Mountains, seventy miles from Rio, after all that Mr. Gardner and others have done, abound in thousands of fine plants not yet known. I spent about eight days on these mountains, and found plants so varied and attractive that I did not know well which to select. On rocks there are *Gesnerias*, *Gloxinias*, *Cacti*, *Tillandsias* and *Orchidæ* in the greatest profusion. I calculate that more than *one half* of the plants of Brazil are still unknown to botanists. Insects, birds and quadrupeds are as varied, in proportion, as the vegetable kingdom. We spent about two months on *Tierra del Fuego*. Here was a contrast to Brazilian vegetation: stunted birches, with *Misodendrons* in tufts like birds' nests on their tops—scrubby barberries—winter bark—and *Embothrium* (a splendid *Proteaceous* shrub), were the characteristic features. The face of the hills is covered with spongy, mossy turf, in which we found a *Primula* (like *Scotica*), *Drosera*, *Pinguicula*, several species of *Pernetha*, a *Myrtus*, and the charming *Calixenia*; with many nice things which I thought well adapted for your alpine frame.

"We reached Chili in the dry season, so that we did not find much in flower till we arrived at the mountains. Behind Santiago, on the Andes, at the region of perpetual snow, we found an immense number of alpine plants belonging to genera and tribes new to us. Figure to yourself ten or twelve kinds of *Umbelliferous* plants, with heath-like leaves, and fruit as large as that of *Heracleum*, and yet none of them over an inch in height. In Peru, behind Lima, we crossed the Andes at the height of 16,000 feet, and descended a considerable way on the opposite side, along one of the branches of the Amazon. This was a rich journey for us in plants,—fine *Rhododendrons* at the height of 13,000 feet. At the base of the snow was a dense sward of plants, none of them over an inch high, principally composed of *Saxifrages*, *Compositæ*, *Gentianas*, and curious *Calceolarias*. At 14,000 feet we found vast patches of an *Echinocactus*, so wrapped up in its own wool, that at a distance we took the patches for sheep. The scenery here was of the grandest kind. We saw some splendid *Cacti*, *Alstrœmerias* and *Tropæolums*, and on our way down, fields of *T. tuberosum* and *Oxalis crenata*. Very little rain falls in the vicinity of Lima, so that to raise fruit and vegetables recourse must be had to irrigation. The *Cherimolia* (*Annona tripetala*) is here the finest of all fruits I ever tasted.

"You will, no doubt, have heard of our discovering an Antarctic continent, (Ross says 'tis only a batch of islands). Of this I can't speak, having been left at Sydney with the other scientific gentlemen. Here we chartered a schooner, and went to New

Zealand, where we spent eight weeks. This same New Zealand is not the fine country that the English government and land speculators crack it up to be. The climate is very wet, and the soil cold and poor—consisting principally of a stiff yellow loam, on great part of which nothing grows but a species of *Pteris*, whose roots form the principal food of the natives. The surface of the country round the Bay of Islands is very irregular,—high ridges and valleys succeeding each other in rapid succession. In some of these valleys, from eight to ten species of Coniferous trees are found—among them the Courie pine (*Agathis Australis*) 120 feet high.

“Leaving New Zealand, we touched at Tongataboo on our way down to the Fiji Islands—260 in number—all which we surveyed. In doing this, two of our officers were brutally murdered by the natives. We had also a proof of these islanders being cannibals, as they brought in a canoe, alongside of our ship, part of a human body, which they were eating. We discovered several new islands on the line in passing to the Sandwich Isles. The grandest sight seen during our cruize, was the volcano on the Island of Hawaii. After spending six months on the north-west coast of America, our voyage lay again by the Sandwich Isles; and searching for a near passage to the China Sea, we were led among the Sooloo Isles and Straits of Balabac, then down to Singapore, which is a very flourishing place. Here I met a cousin of Sir Walter Scott’s, who looks very much like what the old man was.

“During this voyage we collected and dried upwards of 10,000 species of plants; sending also a great many live ones and seeds to the National Institute at Washington, to which I am at present attached. To me the most interesting of these plants is a species of *Nepenthes* from Singapore, bearing pitchers much larger every way than those of the *N. distillatoria*, and, when perfect, capable of holding a pint of water. There are two other species at Singapore, one with many small pitchers in bunches, on a woody stem, found in pools of water, while the other covers a low sandy island in the Strait, about three miles off the road-stead. At Manilla there is a species distinct from any I have seen elsewhere.”

Professor Graham exhibited some very beautiful and interesting exotics, recently brought into flower in the greenhouses and stoves; and afterwards accompanied the members over the garden, which presented a most charming appearance. Every season it is becoming more and more developed; and the late alterations reflect much credit on the learned Professor, and his able coadjutor, Mr. M’Nab.

June 8, 1843.—Professor Graham in the chair. Donations were presented to the library from C. C. Babington, Esq., Cambridge, (his ‘Manual of British Botany’); from Dr. J. K. Maly of Gratz; L. W. Dillwyn, Esq., and others.

Mr. James M’Nab exhibited specimens of *Laburnum*, presenting some remarkable anomalies. He stated that several years ago, a tree was sent from the Epsom nursery to the Royal Botanic Garden here, as a curiosity, bearing *three* distinct varieties of *laburnum* on the same root, without any further engrafting than that of working the red *laburnum* on the yellow. This tree is now to be seen in flower, the yellow and red flowers being predominant. Last spring he observed a tree of the red *laburnum* in the Horticultural Garden, bearing several large tufts of *Cytisus purpureus*, with one small shoot of the yellow. The same tree, this year, has ten distinct shoots of the yellow, and a quantity of those of *C. purpureus*.

On Monday last, at Dysart house, he observed two trees, one bearing *Cytisus purpureus* and *C. Laburnum coccineum*, the other *C. Laburnum* and *C. Laburnum coccineum*; but neither of them having more than two varieties. This afternoon he ex-

amined plants of the *red* laburnum in Messrs. Lawson's nursery, three years grafted, and found several of them producing shoots of the *yellow*, but only one of them having *C. purpureus*; and in the nursery of Messrs. J. Dickson and Sons, several of the plants, two years grafted, have shoots of the *yellow* but none of the *purple*.

The red laburnum first appeared at Paris in 1828, in the nursery of Mr. Adam, and was a hybrid between the common laburnum and *Cytisus purpureus*.

Dr. Graham observed that it was difficult to explain the cause of this phenomenon, namely, of mules reproducing the different forms on one plant. It had occurred also in plants of the Cactus tribe, but had no parallel in the animal kingdom -- there the general form and habit merely are affected by crossing. He considered the subject to be one of much interest, as the phenomenon was at variance with the existing theories.

Mr. M'Nab exhibited recent specimens, in flower, of *Orchis ustulata* and *Ophrys fucifera* from Kent, which had been kindly procured by Lady Harvey for the meeting.

Dr. Douglas Maclagan presented to the Society, from Mr. John Scott, F.B.S., Greenock, a series of specimens of the more important kinds of timber in use for the purposes of ship-building. The author mentioned, among others, the following kinds of timber:—Yellow pine (*Pinus variabilis*) from North America. Pitch pine (*P. rigida*) from Carolina. Red pine (*P. resinosa*) from Quebec. These kinds are chiefly applicable to making deck-planks, or for light spars.

The American or rock elm (*Ulmus Americana*) and the black birch (*Betula lenta*), were likewise noticed along with beechwood, as being the kinds best adapted for keels, bottom planks, and other parts of ships which are submersed in water.

British and American oak, and East Indian or Malabar teak (*Tectona grandis*), were mentioned as being of very general applicability to the purposes of the shipwright, as also the African teak, or, as it is often called, African oak—the tree yielding which is still unknown to botanists. Two varieties of hard and heavy woods were pointed out as being occasionally imported among African teak, and having similar qualities, but which are unknown to botanists or wood-merchants.

Of timbers imported from the West Indies, two deserve remark. The first is the Mora or Morra timber *Mora excelsa*, Schomb.), which is a large and valuable timber, now introduced in considerable quantity from British Guiana: it has a fœtid odour when scraped. The other is the green-heart timber, produced by an unknown tree of British Guiana, a heavy, hard, and valuable timber, well adapted for ship-building, and now extensively used in the Clyde. Dr. Maclagan had sent specimens of the fruit of this tree to Dr. Lindley and Sir W. Hooker, both of whom considered it as Lauraceous, but had been unable to refer it to any known genus. He stated to the Society that this tree was known in Demerara by the Indian name of Bebeeru, and also by the Dutch name Sipeeri; and that the bark of it had been found, by Mr. Rodie, to contain a vegetable alkaline matter, which possessed the power of curing agues. Recent experiments of his own had shown that there were two distinct alkalies present in the bark and seeds of this tree.

Previous to the reading of these papers, Professor Graham, accompanied by a large party, visited the greenhouses, where he pointed out some of the more rare and interesting plants, with which they are now literally crowded. It was pleasing to see so many specimens, brought together from every climate and region, in the most thriving and luxuriant state, with scarcely an exception.

June 2.—John Reynolds, Esq., Treasurer, in the chair. Donations to the library were announced from the Academy of Natural Sciences, Philadelphia, and Dr. Tilley. Mr. W. Andrews, Secretary of the Natural-History Society of Dublin, presented an interesting collection of Irish plants, comprising specimens of *Arundo lapponica*, *Arenaria ciliata*, *Lathyrus maritimus*, *Trichomanes speciosum*, several varieties of *Saxifraga Geum*, &c., many of them being from new localities. Specimens of *Anemone ranunculoides*, found wild in a wood near Worksop, Nottinghamshire, were presented by Mrs. Margaret Stovin. Mr. F. Bainbridge presented a specimen of *Lecidea Wahlbergii*, *Acharius*, a lichen new to the British Flora.*

Read, the continuation of a paper commenced at the last meeting, —“On the Groups into which the British Fruticose Rubi are divisible,” by Mr. Edwin Lees, F.L.S., &c. Before the Rubi can be adequately understood so as to be reduced into groups, their mode of growth must be fully investigated; and it will then perhaps become evident what points, from their greater permanency, are to be relied upon for general as well as specific characters.

The author had already traced the mode of growth of the British fruticose Rubi, in a paper read before the Botanical Society of Edinburgh. The general idea of the *biennial* continuance of the Rubi is incorrect; all are *triennial* by the renewed growth of smaller flowering branches from the barren stems, or the bases of the withered panicles of the second year, or by the barren stems shooting forth a *second* crop of barren stems, which flower the *third* year; and that often the existence of an individual bramble, independently of fresh shoots from the root, is protracted to the fourth or fifth year.

The consequence of this is, that no specific distinction whatever can be drawn from the *inflorescence*, which may be long the second year, and is much shorter the third; while it often happens that when a barren stem becomes prostrate, the panicles of flowers rising from the extreme end, are twice or thrice as long as those nearest the main shrub. This fact of the extended growth of the Rubi has been lost sight of, and hence puzzling productions have been considered as new species, just as the *R. fastigiatus* of Weihe and Nees is but a form of *R. plicatus*, as is now admitted by Essenbeck himself, from its exhibiting a smaller growth of third year's flowers.

Undoubtedly the *barren stem* offers the best, if not the only plan of discrimination in subdividing the Rubi into groups, especially if we take into consideration, in combination with it, the *erect* or *arched* mode of growth and continuance of vitality. The leaves are so exceedingly variable, in shape, size and hoariness, as to be almost useless in this respect. A table was appended to the paper, by which was seen at a glance what the differences really were by which groups could be defined; and it would appear, in fact, that these resolve themselves almost entirely into the perfect smoothness, glaucosity, or more or less of hairiness and glandulosity of the barren stems.

Commencing then with *Rubus cæsius* and ending with *R. Idæus*, it will appear that *seven* groups are easily separable from each other, and passing from one into the other, in a very natural manner. These, at all events, may be considered the smallest number of species into which the Rubi can be classed, without confounding really different things, while if we proceed further into minuter distinctions, these typical forms will become groups, under which the various varieties, species, or sub-species of each, will be referable.

1. *Cæsii*.—Having the barren stem round, bloomy, covered with unequal prickles, trailing, rooting. *Rubus cæsius* and its various derivations.
2. *Glandulosæ*.—Barren stem angular, hairy and prickly, setose, very glandular, arched or trailing, rooting. This group will include *R. radula* of Weihe and Nees, *R. Koehleri*, *pusco-ater*, &c.
3. *Villicaulæ*.—Barren stem angular, very hairy, but without glands, prickly, arched or decumbent, rooting. Including *R. villicaulis*, W. & N., *R. leucostachys*, Smith, &c.
4. *Fruticosi*.—Barren stem angular, glaucous, prickly, arching, rooting. Including *R. fruticosus* and *discolor*.
5. *Nitidi*.—Barren stem angular, almost smooth, with few prickles, rooting rarely. *R. affinis*, *nitidus*, *rhamnifolius*, &c.
6. *Suberecti*.—Barren stem angular, very smooth, nearly erect, not rooting. Including *R. suberectus*, Anderson and Smith, *R. plicatus*, W. & N., and *R. fissus*, Lindley.
7. *Idæi*.—Barren stem round, downy, covered with innumerable, small, dilated prickles, erect. *R. Idæus* and varieties.

There is, however, it must be admitted, an anomaly in the first group, which can only be got over by subdividing it into two (as done in the tabular view), for the excessively glandulose assurgent stem of *Rubus dumetorum* has a very different aspect from the prostrate *bloomy* one of *R. cæsius*; and yet it is demonstrable that the former is really derivable from the latter: so that although the blue berries of the dewberry would at first sight appear so discriminative, varieties arise with fruit altogether of a different aspect. It must be borne in mind, however, that this is in a great degree in accordance with the well-known laws of cultivation. *Rubus dumetorum* is *R. cæsius* excessively developed in *leaves* and *flowers*, but the fruit is mostly abortive or imperfect, while *R. cæsius*, in its normal prostrate form, with thin foliage and small flowers, produces on the humid ground the finest fruit of any of the fruticose Rubi.

The first group — *Cæsii* — must therefore be necessarily divided into two; but the other groups will be found to maintain the characters assigned them pretty correctly, and may therefore be depended on. It is true that occasionally some of the *Villicaulæ* will exhibit a few glands on their stems or panicles, under circumstances of great luxuriance of growth or exposure, but nothing to be compared with the excessive degree of glandulosity of the *Glandulosæ*. Then it is true that the barren stem of the second group of *Cæsii* is nearly as glandular as in the *Glandulosæ*, but the former will show their affinity with *R. cæsius* by the calyx being *involute* on the fruit, not *reflex* as in the latter.

The *Fruticosi* always preserve an independent marked character; and the *Nitidi*, if, in one of their forms—*R. affinis*—coming near to the *Suberecti*, may yet be always well distinguished by the arching barren stem, which, when exposed, is very stiff and rigid in the latter, almost as much so as in *R. Idæus*. This is well observable in the barren moors of North Wales.

Sketches of the barren stems of the different groups were exhibited. That the forms of each group sport into each other according to situation and exposure, without much limitation, is highly probable, but Mr. Lees had met with no decided cases of hybridity. Specimens of various species accompanied the paper, and are deposited in the Society's herbarium.—*G. E. D.*

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No. XXVII.

AUGUST, MDCCCXLIII.

PRICE 1s.

ART. CLVI — *Researches in Embryogeny.* By W. WILSON, Esq.
(Continued from p. 628).

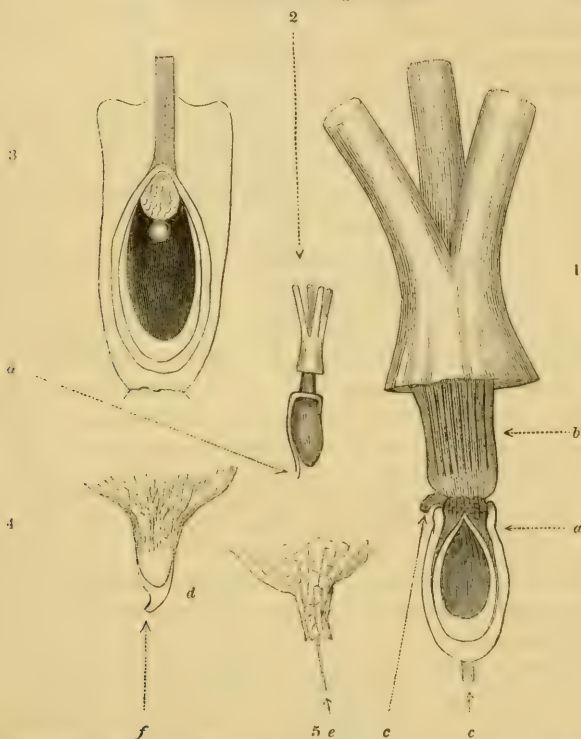


Fig. 1. Section of ovulum (*a*) of *Statice Armeria*, with the secundine adhering to the cellular body (*b*) proceeding from the base of the styles. The position of the funiculus, *c*, *c*, is also represented in this figure—portions of three of the styles are seen. The carpellary integument is dissected away to show the ovulum and its suspensor prior to fecundation.

Fig. 2. Another view of the ovulum with its funiculus (*a*) and suspensor, previous to fecundation, less magnified.

Fig. 3. Section of germen soon after fecundation, showing the rudimentary embryo.

Fig. 4. Apex of the cellular body, or suspensor, showing the vesicular portion (*d*) and tubular extremity (*f*) at the period of fecundation.

Fig. 5. Cellular body as seen after the time of fecundation, with the hair-like projection (*e*), magnified about 300 times.

IN Lindley's *Natural System*, edition 2, there is an interesting account of the ovulum of *Plumbaginææ*, which however is not quite accurate. Instead of the ovulum in *Statice Armeria* having its foramen

covered by the strap-like funiculus previous to fecundation, and the funiculus subsequently pushed aside by the protrusion of a cellular body proceeding from the base of the styles, I find that previous to the expansion of the flower this cellular body is intimately united to the apex of the secundine of the ovulum, and remains thus attached until fecundation is effected, (see fig. 1 and 2): consequently the funiculus, in every stage, occupies a lateral position. At the exact period of fecundation there is reason to believe that the cellular body penetrates the apex of the nucleus by a very minute aperture; because when the embryo just becomes visible within the nucleus at its apex (suspended from a mass of spongy cellular tissue), there is sometimes to be seen a hair-like process terminating the cellular body (now disunited from the secundine, and by its shrinking, at some distance above it) as though a pollen-tube had passed down from above into the nucleus. Those who hold the views of Schleiden will find the appearances extremely plausible, (see fig. 5). The cellular body, as it appears at the time of fecundation (see fig. 4) is such as to induce the supposition that the vesicular body (*d*) may be the origin of the embryo, and may also perhaps be the bulbed extremity of a pollen-tube; but this is at variance with all that I have yet witnessed in other tribes. The part marked *f* (magnified about 300 times) appears to be the truncated extremity of a tube which may have been continued into the nucleus, the apex of which consists of loose cellular tissue, and may have a very minute aperture; but this, as well as the aperture of the secundine, can be very imperfectly made out by actual observation. That the hair-like process of the cellular body (fig. 5) has in some way penetrated into the nucleus is almost certain, and need not be disputed.

At fig. 3, the embryo is shown as it appears shortly after fecundation. The upper body within the nucleus is a mass of spongy cellular tissue, and the roundish body below is the embryo, with its two wide-spreading lobes (not seen in the figure from its position), which form the cotyledons when the embryo has filled up the cavity of the nucleus. Previous to fecundation the nucleus has no trace whatever either of the embryo or of the cellular tissue from which it is suspended. It constitutes the albumen of the perfect seed, and is much thickened towards the lower part.

Plants belonging to the order Plumbagineæ are remarkable for having five styles or pollen-ducts and only one ovulum. Assuming that the embryo is formed by the extremity of a pollen-tube, what is to prevent the occasional presence of two or more embryos in the ovulum?

Such of the readers of 'The Phytologist' as have not seen an article in the 'Microscopic Journal' (ii. 138), by Herbert Giraud, M.D., 'On the origin and development of the embryo in *Tropæolum majus*,' will do well to consult it.

W. WILSON.

Warrington, July 7, 1843.

[We give below Dr. Giraud's article from the 'Proceedings of the Linnean Society,' where it originally appeared.—*Ed.*]

"After referring to the researches of MM. Schleiden, Wydler, Mirbel and Spach, and A. St. Hilaire, on this important point, Dr. Giraud states that he was induced to select *Tropæolum* as the subject of his own observations, on account of its solitary ovula, and their comparatively large size, which render the individuals of this family, as well as the allied Geraniaceæ, peculiarly fitted for the purpose. He arranges his observations under seven general heads, corresponding with as many progressive periods in the growth of the female organs, and extending from the completion of the anatropous development of the ovule to the perfect formation of the embryo; or from the commencement of the expansion of the bud to the complete formation of the fruit. The results are collected from a great number of dissections.

"In the *first* period, or just before the expansion of the bud, a longitudinal section of the carpellum from its dorsum towards the axis of the pistillum, dividing the ovule, shows the latter to have completed its anatropous development. A portion of rather firm and dense cellular tissue, enclosing a bundle of vessels, descends from the placenta and in apposition with it to form the raphe, and terminates in the base of the ovule. The nucleus has only one integument, at the apex of which is the exostome or micropyle, opening close by and to the outside of the point of attachment; and the conducting tissue of the style may be traced into the carpellary cavity as far as the exostome.

"In the *second* period, during which the expansion of the bud and the dehiscence of the anthers commence, and therefore, before impregnation, a small elliptical cavity makes its appearance near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells: this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome. The apex of the embryo-sac encloses at this period a quantity of organizable mucilage, containing many minute bodies, having the appearance and character of cytoblasts.

"In the *third* period, the apex of the nucleus and of its integument, becomes slightly inclined towards the placenta. The embryo-sac is much enlarged and lengthened; its mucilage has disappeared and given place to an elongated diaphanous utricle (*utricule primordiale*, Mirbel; *vésicule embryonnaire*, Meyen; *extrémité antérieure du boyau pollinique*, Schleiden) containing a quantity of globular matter or cytoblasts. This primary utricle is developed wholly within the embryo-sac, from which it is obviously distinct.

"The *fourth* period occurs after impregnation. The pollen tubes do not extend into the carpellary cavity; but the fovilla, with its granules, is found abundantly in the passage leading from the style to the exostome. With the increased development of the embryo-sac, the primary utricle elongates and becomes distinctly cellular, by the development of minute cells in its interior, while at the extremity next the base

of the nucleus it is terminated by a spherical mass consisting of globular cells. The primary utricle at this period assumes the character of the suspensor (Mirbel), and its spherical extremity constitutes the first trace of the embryo.

"In the *fifth* period, the apex of the nucleus and of its integument becomes more inclined towards the placenta; the spherical extremity of the suspensor enlarges, and it becomes more evident that it constitutes the rudimental embryo. In the mean time the suspensor has become lengthened by an increase in the number of its cells; and its upper extremity is found to be protruded through the apex of the embryo-sac, the apex of the nucleus and the micropyle. From this extremity there is a considerable development of cells, many of which hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity. This process is composed of from nine to twelve rows of cells, and its extremity resembles in appearance and in the anatomical condition of its cells the spongiole of a root. By a slight traction of this cellular process, the suspensor with the embryo may be withdrawn from the embryo-sac through the exostome, thus proving the continuity of the process with the suspensor, and through it with the embryo itself.

"During the *sixth* period the suspensor becomes more attenuated; and the cellular process has reached the base of the ovulum, the cells of its extremity abounding with cytoblasts, which prove that it is still progressing in development. The embryo also increases in size, and two lateral processes are observed, which evidently form the first traces of the cotyledons.

"In the *seventh* period, all distinction between the nucleus and its integument ceases, and they form a single envelope enclosing the embryo-sac; the cellular process has become so much developed, that its extremity has passed round the base of the ovulum and is directed towards the placenta; and the lateral processes of the embryo have become distinct fleshy cotyledons, enclosing both the radicle and plumule in corresponding depressions of their opposed surfaces. The subsequent changes consist chiefly in the great development of the cotyledons, which ultimately occupy the entire cavity of the nucleus, filling the space usually taken up by albumen.

"From these observations Dr. Giraud deduces the following inferences.

"The formation of the embryo-sac, and the development of cytoblasts within it, having been shown to take place at a period prior to impregnation, and even the primary utricle itself making its appearance before the emission of the pollen from the anther, and before the expansion of the stigma, the origin of the primary utricle cannot be referred to the influence of impregnation, nor can it have been derived from the pollen tube pressing before it a fold of the embryo-sac.

"The primary utricle at its first formation being quite distinct from the embryo-sac, even at its apex (although brought into contact with it at a subsequent period, and ultimately penetrating it), cannot result from a depression or involution of the embryo-sac, as is maintained by M. Brongniart.

"The pollen tubes (which after impregnation may be traced in the conducting tissue of the style) never reaching the micropyle, but pollen granules being found in abundance in the channel leading to it, and being doubtless brought into contact with the outer surface of the embryo-sac through the exostome; and the first trace of the embryo appearing at this time in the formation of the spherical body at the inferior extremity of the primary utricle—Dr. Giraud is led to conclude that the origin of this simple spherical body results from a peculiar process of nutrition, determined by the

material or dynamic influence of the fovilla, conveyed through the medium of the primary utricle or suspensor.

"The paper was accompanied by a series of drawings representing the ovulum of *Tropæolum* in the several stages of development described."—*Proceedings of the Linnean Society*, February 1, 1842: p. 123.

ART. CLVII. — *List of the Cryptogamic Plants of Oxfordshire*.*

By PH. B. AYRES, Esq., M.D.

Thame, May 18, 1843.

SIR,

I inclose you a list of the Cryptogamic Flora of Oxfordshire, as far as it has been at present examined, compiled from a manuscript list of Mr. Baxter's, with such additions as I have been able to make. It will be seen that very little has been done towards forming a complete list for the county, as most of the localities given are in the immediate neighbourhood of Oxford, and the country towards the northern extremity has had little attention paid to it. I have no doubt that that part of the county would repay the investigation, since in my own neighbourhood I have found two species, which Mr. Berkeley has determined to be new to the British Flora.

I am, Sir,

Your obedient Servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

<i>Phascum subulatum</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Thame and Stokenchurch range, <i>Dr. Ayres</i> .	<i>Gymnostomum ovatum</i> . Walls &c., common.
— <i>muticum</i> . On a bank at the N.E. corner of Shotover hill, <i>Baxter</i> .	— <i>truncatulum</i> . Banks &c., common.
— <i>cuspidatum</i> . Banks, &c. rather common, Thame, <i>Dr. Ayres</i> .	— <i>β. intermedium</i> , Hook. Banks, Bagley wood, rare, <i>Baxter</i> .
<i>Sphagnum obtusifolium</i> . Bogs, common, <i>Baxter</i> .	— <i>pyriforme</i> . Ditch-banks, Thame, abundant, <i>Dr. Ayres</i> .
— <i>squarrosum</i> . Bogs, Shotover hill.	<i>Tetraphis pellucida</i> . Shotover plantations, <i>Sibthorp</i> .
— <i>acutifolium</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Bates' Leys, Thame, <i>Dr. Ayres</i> .	<i>Splachnum ampullaceum</i> . On cowdung, Shotover hill, very rare, <i>Baxter</i> .

* The list, as received from Dr. Ayres, contained also localities of the Ferns; but these, in accordance with our notice (Phytol. 549), and in order that repetition may be avoided, will be given in Mr. Newman's list of the Ferns of Oxfordshire.—*Ed.*

- Encalypta vulgaris*. On an old wall at Headington quarry, and on the wall of the sunk fence, Shotover plantations, *Baxter*.
- Weissia lanceolata*. Walls and banks, Shotover hill, South Hinkley, *Baxt*.
- *curvirostra*. Shotover hill, *Sibthorp*.
- *controversa*. Banks, Shotover hill, 1833, *Dr. Ayres*.
- Grimmia apocarpa*. Walls near Oxford, common, *Baxter*; rare at Thame, *Dr. Ayres*.
- *pulvinata*. Abundant on walls and tiles.
- Didymodon purpureus*. Banks, walls &c., common; Thame, *Dr. Ayres*.
- Trichostomum canescens*. Heaths, Shotover hill, *Sibthorp*.
- Dicranum bryoides*. Shotover hill, &c., *Baxter*.
- *adiantoides*. Moist shady places, *Baxter*.
- *taxifolium*. Moist shady places, common.
- *glaucum*. Ensham heath, *Sibthorp*; Bagley wood, *Baxter*; very rare.
- *cerviculatum*. Shotover hill, *Baxter*.
- *flexuosum*. Shotover hill, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *undulatum*. Shotover hill, *Baxter*.
- *Scoparium*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *heteromallum*. Banks, Shotover hill, Stokenchurch woods, &c.
- Tortula rigida*. Walls and banks, very common, *Baxter*.
- *convoluta*. Moist banks, *Baxter*.
- *muralis*. Walls &c., exceedingly common.
- *ruralis*. Walls, roofs &c., very common.
- *β. lœvipila*, Hook. Thame, *Dr. Ayres*.
- Tortula subulata*. Shotover hill &c.; Stokenchurch woods, *Dr. Ayres*.
- *unguiculata*. Very common.
- *fallax*. Walls, banks, &c., *Baxter*.
- Cinclidotus fontinaloides*. In the Isis, *Sibthorp*.
- Polytrichum undulatum*. Shotover hill, *Baxter*; Stokenchurch woods, &c., *Dr. Ayres*.
- *piliferum*. Shotover hill, *Baxter*.
- *juniperinum*. Shotover hill, *Baxter*.
- *commune*. Shotover hill, Bagley wood, &c., common.
- *aloides*. Shotover hill, Bagley wood, *Baxter*.
- *nanum*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- Funaria hygrometrica*. Banks, walls &c., common.
- Orthotrichum anomalum*. Trees, rocks, walls, Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *affine*. Trees near Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *striatum*. Trees, *Baxter*.
- *Lyellii*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *crispum*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *pulchellum*. Bagley wood, *Baxter*; Penleigh Holms, *Dr. Ayres*; very rare.
- Bryum palustre*. Bogs, Bullington green, *Baxter*.
- *carneum*. Ditch-banks, Bullington green, *Baxter*.
- *argenteum*. Very common.
- *roseum*. Shotover hill, *Baxter*.
- *capillare*. Banks, heaths &c., *Baxter*.
- *cœspitium*. Walls &c., very common.
- *turbinatum*. Wet sandy places near the N.E. corner of Shotover hill, *Baxter*; bog near Thame, *Dr. Ayres*.

- Bryum nutans*. Shotover hill, *Baxter*; Thame, abundant, *Dr. Ayres*.
- *punctatum*. Shotover plantations, rare, *Sibthorp*.
- *ligulatum*. Moist places, common.
- *rostratum*. Shotover plantations, very rare, *Baxter*.
- *hornum*. Shotover hill, Bagley wood, *Baxter*.
- *cuspidatum*. Shotover plantations, *Baxter*.
- Bartramia pomiformis*. Heaths, rare, *Baxter*.
- *fontana*. Bogs, Shotover hill, Bullington green, *Baxter*.
- Pterogonium Smithii*. Stokenchurch woods, *J. Oglander, Esq.*; I have not met with it, *Ph. B. Ayres*.
- Neckera pumila*. Bagley wood, *Baxter*.
- *crispa*. Stokenchurch woods, *Baxter*; I have found it only on the right side of the road as you ascend Stokenchurch hill, on stumps of trees and on the ground, but never in fruit, *Ph. B. Ayres*.
- Anomodon curtipendulum*. Bagley wood, rare, *Baxter*.
- *viticulosum*. On stumps of trees and on the ground, common, but rare in fruit.
- Daltonia heteromalla*. Shotover plantations, Bagley wood, *Baxter*; neighbourhood of Thame, but sparingly, *Dr. Ayres*.
- Leucodon sciuroides*. Trunks of trees, *Baxter*.
- Fontinalis antipyretica*. Cherwell and Isis, *Baxter*.
- Hypnum trichomanoides*. Shotover hill and plantations, Bagley wood, *Baxter*.
- *complanatum*. Shotover hill, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *riparium*. Wood and stones, in water, *Baxter*.
- *denticulatum*. Bagley wood, very rare, *Baxter*.
- Hypnum serpens*. On trees, pales, &c., common.
- *murale*. Walls of Botanic Garden, Oxford, *Baxter*.
- *purum*. In grassy places, common.
- *Schreberi*. Stokenchurch woods, *Dr. Ayres*.
- *plumosum*. Shotover hill, rare, *Sibthorp*.
- *sericeum*. On trees &c., very common.
- *lutescens*. On banks, trees, &c., *Baxter*.
- *alopecurum*. Shaded banks, *Baxter*; Kingston, *Dr. Ayres*.
- *dendroides*. Shotover hill, near Stow wood, *Baxter*.
- *curvatum*. Shotover plantations, Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *splendens*. Shotover hill and plantations, Bagley wood, *Baxter*; Stokenchurch woods, common, *Dr. Ayres*.
- *proliferum*. Shotover hill and plantations, Bagley wood, *Baxter*; Stokenchurch woods, abundant, *Dr. Ayres*.
- *prælongum*. On decaying trees, &c., *Baxter*.
- *abietinum*. Headington quarry, Shotover hill, very rare, *Baxter*.
- *piliferum*. Shotover hill, rare, *Baxter*.
- *rutabulum*. Very common.
- *velutinum*. Very common.
- *ruscifolium*. On stones &c. in water, near Oxford, *Baxter*; Thame, *Dr. Ayres*.
- *striatum*. Bagley wood, *Baxter*; Stokenchurch woods, *Dr. Ayres*.
- *cuspidatum*. Moist places, common.
- *cordifolium*. Bogs, Shotover hill, Bagley wood, *Baxter*; in a ditch in Old Town meadows, Thame, *Dr. Ayres*.

<i>Hypnum stellatum.</i> Bogs under Bulling ton green, <i>Baxter.</i>	<i>Hypnum filicinum.</i> Bogs, <i>Baxter.</i>
—— <i>loreum.</i> Shotover hill, <i>Baxter</i> ; Stokenchurch woods, abundant, <i>Dr.</i> <i>Ayres.</i>	—— <i>fluitans.</i> Shotover hill, <i>Baxter.</i>
—— <i>triquetrum.</i> Heaths &c., com- mon.	—— <i>aduncum.</i> Bogs, Shotover hill, Bullington green, <i>Baxter.</i>
—— <i>brevirostre.</i> Bagley wood, <i>Baxter.</i>	—— <i>cupressiforme.</i> Woods &c., com- mon ; Stokenchurch woods, <i>Dr.</i> <i>Ayres.</i>
—— <i>squarrosum.</i> Shotover hill, Bag- ley wood, <i>Baxter</i> ; Stokenchurch hill, <i>Dr. Ayres.</i>	—— <i>γ. tenue,</i> E. B. Woods &c., <i>Baxter.</i>
	—— <i>molluscum.</i> Woods &c. ; Sto- kenchurch woods, <i>Dr. Ayres.</i>

(To be continued.)

ART. CLVIII. — *Notice of 'A Visit to the Australian Colonies.* By JAMES BACKHOUSE.' London : Hamilton, Adams & Co. 1843.

(Continued from p. 608).

WELLINGTON Valley appears to be the most inland point reached by our observant traveller. At the end of September 1835 he set out on his return to Sydney, which place he reached on the 30th of the following month. But few botanical observations appear to have been made by the way : we extract the following.

" In the lower altitudes of the mountains the advance of spring was more striking. *Teloepa speciosissima*, forming low bushes, with heads of flowers as large as small pæonies, was in full blossom. The Blue-Mountain parrot, partly blue, and with a breast of crimson, as brilliant as the flowers, was drinking nectar out of the blossoms of this splendid shrub ; and a brown honey-eater was darting its tongue, like a slender pencil of hair, into the elegant pink flowers of *Grevillea linearis*. *Gompholobium grandiflorum*, a large, yellow, pea-flowered shrub, of great beauty, and several species of *Platylobium*, *Daviesia*, *Boronia* and *Eriostemon*, enlivened the solitude and beguiled the walk, of thirty-one miles, through this dreary forest, which we accomplished in ten hours."—p. 336.

After a visit of some months to Van Diemen's Land, J. Backhouse returned to Sydney on the 22nd of February, 1836 ; and in company with Mr. MacLeay and other gentlemen, visited a collection of vines, amounting to three hundred varieties, among which, under French names, are most of those cultivated for the table in England. He speaks of the Sydney botanic garden as a fine institution, and furnished with a good collection of native and foreign plants. Remaining but a short time at Sydney, he sailed in the *Isabella* for Moreton Bay, between six and seven degrees further north, that is, in latitude about 27° 20' S. On the 29th of March, while walking a few miles down

the Brisbane river towards a brook called Breakfast Creek, the waters of which are generally brackish at high tide, several remarkable plants were observed.

“ On the margins of the brook, *Acrostichum fraxinifolium*, a large ash-leaved fern, was growing, along with *Crinum pedunculatum*, a great bulbous-rooted plant, with white, tubular, lily-like flowers. *Hellenia cærulea*, a reedy-looking plant, with broad leaves and blue berries, and a species of *Phytolacca*, with pretty pink blossoms, were among the brush-wood. By the sides of fresh-water ditches there were a *Jussiaea*, resembling an evening primrose, with small yellow blossoms, and a blue-flowered plant, in figure like a *Pentstemon*. On the grassy slope of the hills, near the river, *Hibiscus Fraseri*, with yellow blossoms, like those of the hollyhock, but having a deep purple eye, was in flower.”—p. 359.

And again, a forest, called Three-mile Scrub, visited on the 2nd of April, seems to have been found replete with interest.

“ Some of the trees far exceed 100 feet in height, a few may be 150. Among the lofty ones may be enumerated some *Eucalypti*, called iron-bark, forest-mahogany, &c. and three species of fig, with leaves resembling those of laurel or *Magnolia*. One of these, *Ficus macrophylla*, was forty feet in circumference at the greatest height that I could reach : its roots formed wall-like abutments, extending from the tree, over an area thirty feet across. These fig-trees are very remarkable in their growth : they often spring from seeds, deposited by birds in cavities of other trees, at elevations of, perhaps, fifty feet or more. From these situations they send roots down to the ground, which, in their course, adhere to the tree ; these again emit transverse or diagonal roots, that fix themselves to others, in their course downward. Those that reach the ground thicken rapidly, still spreading themselves upon the face of the foster tree, which, at length, is completely encased. These gigantic parasites rear their towering heads above all the other trees of the forest, sending out vast limbs, and spreading their own roots in the earth, from which also they sometimes grow, without the aid of other trees to sustain them.

“ The trunks and limbs of these, and other trees, support several species of fern, and some epiphytes of the *Orchis* tribe, with fleshy leaves, and singular stems and flowers. Numerous climbing plants, with stems varying in thickness, from that of packthread to that of a man’s body, ascend into their tops, and send down their branches in graceful festoons. Among the slenderer climbers were two species of passion-flower and one of jasmine. The most gigantic climber, which might properly be called a climbing tree, belonged to a race of plants called *Apocynæ* : it had rugged bark, and sometimes formed a few serpent-like wreaths upon the ground before ascending, and spreading itself among the tops of the other trees. There were also three species of *Cissus* ; one of them with simple, and the other two with trifoliate leaves : these are kinds of vine, bearing grapes, about equal in size to English sloes, but sweeter. The fruit of the figs is rather dry, but it is eaten by the native blacks and by numerous birds. The Moreton Bay chesnut, *Castanospermum australe*, is a fine tree, with a profusion of flame-coloured blossom, and with leaves like those of the European walnut. Some of its pods are ten inches long and eight round ; they contain several seeds, in size and colour resembling horse-chesnuds, but, in flavour, between a Spanish chesnut and a fresh-ripened bean, with a slight degree of bitterness. The blacks roast them, and soak

them in water, to prepare them for food. *Acrostichum grande*, one of the ferns that grow on the trees, is as large as a full-grown Scotch cabbage, and is remarkably beautiful. *Caladium glycirrhizon*, a plant allied to the Arum, and one of the race called Tara, the roots of which afford food to the islanders of the Pacific, abounds in these woods. The root is beaten and roasted by the aborigines, till it is deprived of its acrimony; it is then eaten, and is said to be pleasant to the taste. In the margins of the woods, and on the banks of the rivers, the climbers are also numerous, and very beautiful. Among them are *Tecoma jasminoides*, a large, white trumpet-flower, with a rosy pink tube, and *Ipomœa pendula*, before noticed as bearing elegant, pink, convolvulus-like blossoms. In the grass of the open ground is a remarkable climbing nettle, and in the forests, the giant nettle, *Urtica gigas*, forms a large tree. Many of the hills in this neighbourhood are dry, and covered with quartzose gravel. On these, the trees are chiefly of the genera *Eucalyptus*, *Tristania*, *Casuarina* and *Acacia*. In the basaltic soils *Altingia Cunninghamii*, the Moreton Bay pine, is interspersed; and in some places, further into the interior, it forms large woods."—p. 361.

On the 4th of April our traveller visited Eagle Farm, a settlement six miles from Brisbane Town towards the mouth of the river of the same name. On the way he noticed a beautiful *Pavonia*, with a rosy purple blossom, shaded deeply towards the centre; also a splendid *Loranthus*, with foliage like that of a lemon, and clusters of crimson tubular flowers tipped with yellow. The beautiful blue *Ipomœa hederacea* was also in blossom.

"In a wood, on the margin of the river, a few miles above Brisbane Town, I met with a species of lime, *Citrus*, having small diversified leaves, and fruit the size of a walnut; it formed a tree fifteen feet high. *Flindersia australis*, *Oxleya zanthoxyla*, and *Cedrella Toona*? trees of the same tribe as the mahogany, attain to a large size in these forests. *Oxleya zanthoxyla* is the yellow wood of Moreton Bay: one I measured, was forty feet round at about five feet up: it was supposed to be one hundred feet high. The *Cedrella* is the cedar of N. S. Wales; the wood of which resembles mahogany, but is not so heavy. The silk oak, *Grevillea robusta*, also forms a large tree: its foliage is divided, like that of some Umbelliferous plants; its flowers are somewhat like branched combs, of crooked yellow wire, shaded into orange, and are very handsome. *Hoya Brownii*, and *Jasminum gracile*? were abundant on the bank of the river, along with *Tecoma jasminoides*, and many other curious and beautiful climbing shrubs. Eleven epiphytes, of the Orchis tribe, were growing on the trunks of the trees in the forest. Most of these were of the genera *Dendrobium*, *Cymbidium* and *Gunnia*. Some bananas, which had been washed from a place in the limestone country above, where sheep, for the provision of the settlement, are kept, had established themselves on the borders of a creek. Pumpkins were growing among the brushwood, in great luxuriance. The last were observed, with evident pleasure, by my boat's crew of prisoners, who anticipated making a meal of them, at a future day. They are much used as a table vegetable, in New South Wales, and are certainly to be valued as such, in this climate; they keep well, and are a good substitute for potatoes, or for turnips, by land or by sea."—p. 364.

The forest about the Pilot's station, situated at the north point of Stradbroke Island, consists of *Eucalyptus*, *Melaleuca* and *Banksia*,

mixed with the cypress pine, *Callitris arenosa*; and the sand on the shore was bound together by maritime grasses, the large yellow-flowered *Hibbertia volubilis*, and *Ipomœa maritima*, with its large, pink, convolvulus-like flowers, and curious two-lobed leaves. On the muddy land within the reach of high tides, were a species of mangrove and a *Bruguiera*.

"The mangrove resembles a thick-leaved laurel, and has roots from its stem above ground, like the stays of the mast of a ship: its fruit is about an inch in diameter, and it vegetates as it hangs on the bush, and sends out a green radicle, about a foot long, and swollen toward the pointed base; this, bearing the germ on its top, drops from the fruit, and either sticks in the mud and vegetates, or floats in the sea, till landed on some congenial spot, or till it perishes. The *Bruguiera* forms a fine bush, eight or ten feet high, and has the bell-shaped cup to its evanescent petals in substance resembling red morocco leather, and cut into ten narrow segments. Its mode of propagation is similar to the former, but its radicle is shorter, and not swollen towards the base. These gay, red-leather-like flowers, and long, green, spindle-like radicles, were washed up abundantly on the shore, and till I saw them growing, they puzzled me not a little."—p. 375.

On Moreton Island the same plants occurred, together with a *Scævola*, with brilliant blue flowers and black berries. In the sandy places more inland, "*Pandanus pedunculatus*, a species of screw pine, forms a singular tree, fifteen feet high. Its leaves resemble those of the pine-apple; its fruit is as large as a child's head, yellow, and composed of clustered oblong nuts, fleshy at the base, which separate in attached groups when ripe. The fleshy part is eaten by the blacks; but it has an unpleasant smell, and though sweetish, is rather acrid. The trunk is supported securely by roots, that descend from various parts of it, into the sand, and are as thick and straight as broom-sticks; they look rather like the stays of a ship." Some steep sand hills "were overgrown by *Myrtus tenuifolia*, a myrtle of low stature, with narrow leaves, and sweet, aromatic, white berries, spotted with purple. These are the most agreeable native fruit I have tasted in Australia; they are produced so abundantly as to afford an important article of food to the aborigines." Near the east coast was a yellow *Crotalaria*, and three species of ferns, *Lygodium microphyllum*, *Pteris esculenta* and *Blechnum cartilagineum*.

At Newcastle, where he appears in the first instance to have been driven by stress of weather, on his return to Sydney from Moreton Bay, our traveller observed that many open places in the forests abounded with gigantic lily, from ten to twenty feet in height. The stems of this plant, at a foot and a half high, are thicker than a man's arm; they are roasted and eaten by the natives. The roots of this

lily are also roasted, made into a sort of cake, and eaten cold by the natives: "they likewise roast and pound the seeds of *Zamia spiralis*, and then place the mass for two or three weeks in water, to take out the bitter principle, after which it is eaten." At Maitland, forty miles from Newcastle, by the Hunter river, some of the trees were clothed with shaggy lichens, and supported the golden mistletoe: and "the elk's-horn fern, *Acrostichum alcicorne*, which in Port Jackson generally grows on decomposing sandstone rocks, forms here protuberant girdles round the trunks of trees, among the branches of which *Ipomoea pendula* and *Marsdenia fragrans* are striking climbers." Still further up the Hunter River, *Kennedia ovata*, a species of *Tecoma*, *Sicyos australis*, *Nicotiana undulata*, a species of *Cannabis*, and several other striking plants were growing on the banks. In the adjacent woods, called cedar-brushes, from the occurrence of *Melia Azederach* or the white cedar, *Eugenia myrtifolia* and *Ficus Muntia* were observed. "The former resembles a large broad-leaved myrtle, and attains to twenty feet in height; its fruit, which is now ripe, is about the size of a cherry, but oblong and purple, with a mixture of sweet and acid. *Ficus Muntia* is a spreading fig, growing as large as an apple-tree. Where its branches touch the ground, they root, and send up erect shoots, forming a succession of trees. The insipid fruit, which is about the size of a gooseberry, is sometimes produced from the bare trunk and boughs, as well as from the leafy branches, giving the tree a very unusual appearance. These cedar-brushes are also thick with climbers, such as *Cissus antarctica*, the kangaroo vine, *Eupomatia laurinae*, a briary bush allied to the custard-apple, but with inferior fruit, and several *Apocynæ*."

Near Raymond's Terrace, where there is a manufactory of earthenware,—

"*Sarcostemma australe*, a remarkable leafless shrub, with green, succulent, climbing stems, as thick as a quill, and bearing clusters of white flowers, resembling those of a *Hoya*, was growing on some rough conglomerate rocks. In the more fertile spots, by the sides of brooks, there was a species of yam, the root of which is eaten by the aborigines, as well as *Eugenia trinervis*, and another shrub of the myrtle tribe, and *Logania floribunda*, a privet-like bush, with small, white, fragrant blossoms. The country toward Port Stephens, whither we next proceeded, was decorated with *Acacia longifolia*, and some others of that genus, with lively yellow flowers, and with *Bursaria spinosa*, which is fragrant and white, *Lambertia formosa*, a stiff bush, with beautiful deep crimson flowers, and *Dillwynia parvifolia*, with pretty orange blossoms."—p. 399.

At Port Stephens, *Swainsonia galegifolia*, a low suffruticose bush, with white or pink pea-flowers, was remarkably pretty. A little fur-

ther to the north, on the Wilson river, near Port Macquarie, the brushes are very magnificent.

“The trees, some of which are of gigantic size, are overrun with climbing, ever-green shrubs, twisted about them in fanciful coils, or wreathed around them like huge serpents, or hanging from them like ropes; their leafy tops being enlivened by gay and fragrant blossoms, and often hanging pendent to the ground, which is covered thickly with beautiful shrubs, ferns, and flowering plants, nourished by the moisture of the rich alluvial soil, and kept from the parching influence of the sun by the exuberant foliage. Mosses, epiphytes of the Orchis tribe, and splendid ferns, as well as various species of fig-tree, support themselves on the trunks and branches of the larger timber, and add greatly to the richness of this kind of forest scenery; among which, gay parrots, cockatoos, and other birds, unlike those of our native land, sport and chatter in harmony with the rest of the surrounding objects, which are strongly calculated to remind an Englishman that he is far from home, even though he may have made this his adopted country.”—p. 408.

The neighbourhood of Port Macquarie is rich in the diversity of its vegetation, and the whole of the following passage is so replete with interest, that we feel confident it will prove acceptable to our readers.

“The vegetation here is very striking. On our return to Port Macquarie, we noticed a shrubby, white-flowered *Helichrysum*, two species of *Cassia*, *Tasmania insipida*, *Ficus microphylla*, ferruginea, and another species, *Hibiscus splendens*, with blossoms six to nine inches across, *Hibiscus heterophyllus*, and a shrub with white flowers, allied to *Sida*, but of a distinct genus, having five red glands at the base of the common filament, also a singular climbing plant belonging to the Aroideæ, adhering to the trees, along with *Dischidia nummularia*, *Polypodium quercifolium* and *attenuatum*, *Dendrobium tetragonum*, linguiforme, æmulum and *calamifolium*. In some places the country is undulating and grassy. It is adapted for horned cattle, and suffers less from drought than many other parts of N. S. Wales.

“9th. I took a walk into the wood, on Tacking Point, on the coast south of Port Macquarie. The road from Lake Cottage lay through the Cathi Marsh, part of which was crossed by a long and imperfect bridge of logs. *Blandfordia grandiflora* decorated some of the open forest, in which several of the gum-trees were supporting a variety of parasitical figs. A grass-tree swamp intervened between the bridge and the shore. On the borders of the swamp, where the ground was sandy, with a small-mixture of vegetable matter, several species of *Boronia*, *Epacris*, and *Euphrasia*, were in flower, along with *Sowerbæa juncea*, a handsome *Comesperma*, a species of *Sprengelia*, &c. On the drier sand hills there were *Banksia serrata* and *spinulosa*, *Platylobium formosum*, *Ræperia pinifolia*, a species of *Pultenæa* which formed dense patches, and *Kennedia ovata* and *rubicunda*, &c. Close upon the coast, *Pandanus pedunculatus* was of inferior growth to that at Moreton Bay. In a marsh at Tacking Point, chiefly occupied by *Melaleuca paludosa*, and bordered by a large, silver-flowered, willow-leaved *Helichrysum*, *Todæa africana*? had become arborescent, and formed a beautiful tree-fern, with fronds six feet long, on a trunk three feet high. It was growing with an *Alsophila*, the trunk of which was much slenderer than that of the *A. australis* of V. D. Land, and with a large *Crinum* and *Caladium glyceirrhizon*. In the forest, there were many noble trees, similar to those in the neighbouring woods, but

here they were intermingled with abundance of *Scaforthia elegans*, a noble, feather-leaved palm, forty feet in height. The small palm already noticed was also here, and a tall Cyperaceous ? plant, growing into the trees, and again bending toward the ground, with a stem as thick as a ratan. One of the parasitical figs had sent a root down from a lofty bough, remote from the trunk, and the root, which must have swung like a rope, had a diagonal direction, and was adhering at its lower extremity to the foster tree ! Some *Casuarinæ* were encircled by masses of *Acrostichum alcicorne*. This fern retains much moisture in its dead sterile fronds, which form large scales, rising one over another, it generally grows on the upper portion of the trunks of the *Casuarinæ*, and in stormy weather, they are sometimes thrown down by the weight of water and vegetable matter, thus accumulated about them. Many thus circumstanced were lying in the forest, having a profusion also of *Davallia pyxidata* growing out of the masses of *Acrostichum alcicorne*. Other trees, ferns, and flowering plants, were here in great variety.

“Whilst admiring the rich profusion of the vegetable productions, and conversing with some wood-cutters, I insensibly got turned round, and toward evening, on referring to my compass, found myself making rapid progress in a direction opposite to the one I ought to have pursued. What gave to this place the name of Tacking Point I know not, but its name harmonized with my present circumstances ; and to use a sea phrase, I ‘tacked’ without delay, being desirous to escape from the dense forest before sun-set.

“I had become hungry, and looked longingly to the tops of the majestic palms, without the hope of reaching one of them ; but at length, I came to one, which, from some accident, had turned its head downward, so that it seemed to be put exactly into my path. I cut it off, stripped away the base of the leaves, to the tender heart, and went along, enjoying my grateful meal, thankful to Him who had brought me and the crooked palm, as by accident, into contact. The supply was so ample, that when I reached my friends at the Lake Cottage, after a toilsome journey through the marsh, in the dark, I had a piece, as thick as my wrist, and a foot and a half long, under my arm, reserved for supper, in case I should have found it impracticable to reach my quarters, and have been under the necessity of remaining under the bushes of the sand hills, on the coast, during the night.

“Among the sedgy plants in the margin of Lake Innis, there is a large species of *Eriocaulon*. Several other species of this genus occur in N. S. Wales, and one in the west of Scotland,* but its maximum is in America. Plants are subject to a remarkable geographical distribution, which it is very interesting to trace out. The remarkable section of the genus *Acrostichum*, which includes *A. grande* and *A. alcicorne*, has at least one species in India, and another in Western Africa. *A. grande* grows to a large size, on trees bordering on Lake Innis. One measured, had the upper or barren fronds three feet across, and as much in height. There were two mature barren fronds, that had strong black nerves, and the same number of fertile ones. From the opposite extremities of the appendages of the latter, the measurement was seven feet. Some of these appendages were of ten ribbon-like divisions, many of which were bifid. The central portion might be compared to a jockey’s saddle, attached by the pummel.

* *Eriocaulon septangulare*, found in the lakes and pools of Skye and some of the neighbouring islands ; and in Cunnamara, Ireland.—*Ed.*

From this point to the extreme margin, was a foot and a half, and this portion was two feet across. The fructification formed a half-moon shaped patch, under the exterior portion, that extended one foot from the margin, toward the point of the attachment, and was a foot and a half across. A young, white, barren frond, almost circular, was placed in front of the two older ones, to which it was closely pressed. Behind these, there were several dead, spongy, old fronds, that retained much moisture, and were penetrated by numerous spongy roots, such as were also spread behind them, on the bark of the tree that supported this remarkable fern, the colour of which was bluish green, covered with a whitish powder."—p. 410.

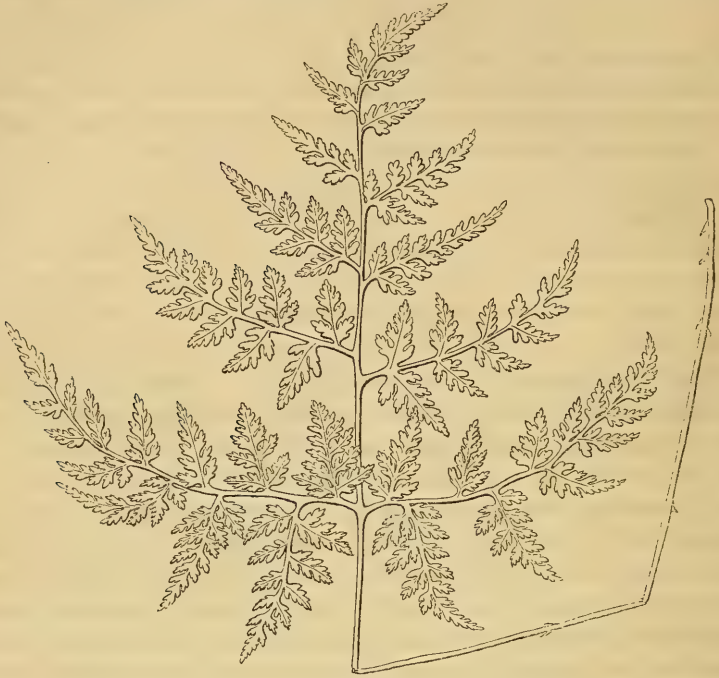
(To be continued).

ART. CLIX. — *Varieties.*

335. *Asplenium viride* and *Ham Bridge*. I had long noted Ham Bridge as a spot worthy of a visit, on account of its producing a fern alien to the whole district in which it is situated, (Phytol. 46); so I resolved to make it an object of pilgrimage. I was on foot, and wended my way from Sapey Brook (rendered illustrious by the discoveries of Jabez Allies, Esq.), along the rich valley of the Teme, through meadows clothed with luxuriant herbage, and among cattle fattening for the Smithfield show. As I approached the bridge, the red bricks of which it is built, and the dry and dusty road which passed over it, seemed in no degree to increase the chance of my success: yet on that bridge, facing the road-way and covered with dust, was the identical plant I sought — small indeed, but the species not to be mistaken. The parapet wall of the bridge is unusually high, but by some exertion I contrived to overcome this difficulty, and succeeded in obtaining piecemeal a good view over both the sides. The bridge appears to be of some antiquity, and is robed in many places with ample plants of *Parietaria*; in a few spots, *Asplenium Trichomanes* and *A. Ruta-muraria* have established themselves. I saw two or three small plants of *Polypodium vulgare*, and about as many of *Asplenium viride*. Having resolved not to exterminate the latter plant, and yet being desirous of convincing the most sceptical of my success, I took some little specimens which faced the roadway, leaving others to reward the labours of future pilgrims. — *Edward Newman; Hanover St., Peckham, June 4, 1843.*

336. *Cystopteris montana* a *British Fern*. This beautiful fern, which seems to occur in nearly all the alpine regions of Europe, was discovered by Mr. Wilson in Scotland in 1836. It has generally been

described as an *Aspidium*, but a glance at Schkuhr's figure of the fructification will show that Presl is right in referring it to the genus



Cystopteris montana.

Cystopteris. A specimen, obligingly lent me by Mr. Wilson for my forthcoming reprint of 'British Ferns,' is figured above. — *Id.*

337. *Note on the preservation of Colour in specimens of Plants by immersing them in Boiling Water.* In the Report of Proceedings of the Botanical Society of Edinburgh (Phytol. 189), Mr. Evans is said to have preserved the colour of *Lathræa squamaria*, *Asperula odorata*, &c., by immersing them in *boiling water* for a short time. Mr. Sidebotham tells us (*Id.* 233) that he has tried the experiment, as described by Mr. Evans, and that with him hot water turned *Lathræa squamaria* blacker than when prepared in the usual way. Since Mr. Sidebotham expresses surprise at the experiment failing in his hands, it would be well to know if the waters at Melville Castle be the same as the water in the neighbourhood of Manchester; and if all water at a boiling heat would act in the same way on vegetables, so far as the colouring matter is concerned. For before we can come to any con-

clusion as to the benefit to be derived from the use of hot water in the preparation of botanical specimens, it would be well to know what kind of water we are making use of; for if Mr. Evans or Mr. Sidebotham were to try the experiment with water highly charged with *iron*, and again, with the same kind of plants, make use of water which is highly charged with *lime*, perhaps they would not see the same effect produced. Mr. Evans tells us that plants, after being immersed in boiling water, will dry in nearly one half the time required to dry them in the usual way. It is not stated if the specimens were subjected to the same kind of treatment after their immersion in boiling water, as when they are dried in the usual way. I have tried this experiment, that is, I have gathered specimens at the same time, and at the same place, and put part of them in boiling water for a few seconds, and then placed them in paper to dry. I then placed some in the same state in which I gathered them in the same kind of paper, and changed them at the same time, and in short gave them the same kind of treatment throughout. The result of this experiment was, that the plants which had been immersed in the boiling water, took three times the length of time to dry that those required which had not been in the boiling water. The plant which I tried the experiment on was *Galeobdolon luteum*. I now enclose three specimens of *Asperula odorata*: the one marked No. 1, I dried in the usual way—you will observe it is of a very dark colour: No. 2, I immersed in boiling water, and then dried it—that you will observe is much paler in colour than the plant is in a living state. No. 3, I put in a sheet of paper in the state in which I gathered it, and then placed it on the top of a steam-engine boiler. I let it remain there fifteen minutes, without changing the paper; in this short time I found it to be quite dry: this, you will observe, has by far the best colour of the three. I also enclose two specimens of *Galeobdolon luteum*: the one marked A, I immersed in boiling water for four seconds, and then dried it in the usual way; the other, marked B, I dried as the *Asperula* No. 3, only it took more time—thirty instead of fifteen minutes: the colour of both is very well preserved, but you will see that the one marked B is much the better of the two. A few days ago Dr. Harvey sent me a few specimens of *Pinguicula grandiflora* in a living state; and as I had not seen good specimens of that plant, I resolved to try what I could do in drying them. The first thing I did was to remove as much of the moisture as possible from the leaves. I then took one of the specimens, and placed it on a sheet of soft paper; then I carefully spread each flower, putting on them a piece of common blotting paper. I

next folded up the specimen and placed it in other sheets of paper : all the specimens I put up in the same manner. I then exposed them to a gentle heat for thirty-six hours, and in that time I changed the papers three times ; they were then taken out, and found to be quite dry, with the colour of both leaves and flowers most beautifully preserved. Much might be said on the subject of drying botanical specimens, but structure is what I always wish to see preserved ; and as for colour, I would say that white paper is decidedly the worst that can be used, either for drying plants or keeping them in after they are dried, owing to the extensive use of chlorine in the manufacture of it. The enclosed specimen of *Barbarea stricta* was dried by artificial heat in four minutes, and its colour, you will observe, is not in the least injured. But as I am now taking up too much of your valuable space, I will conclude by saying that Mr. Shepherd, of Mill House, near Halifax, has a method of preserving plants, perhaps known only to himself, which is decidedly the best I have ever seen, so far as colour is concerned. The plan which he adopts is the fixing of their colours by some chemical process, either before or during the progress of drying ; and I hope, before long, to prevail on him to give us the result of his experiments on this subject. The following plants, dried by Mr. Shepherd in the year 1838, are now enclosed ; they will serve to show the merit of his plan in preserving the colours of plants :—*Anagallis arvensis*, *Epilobium angustifolium*, *Listera ovata*, *Orchis latifolia*, *Sagittaria Sagittifolia* and *Myosotis sylvatica*. — *Samuel Gibson ; Hebden Bridge, June 12, 1843.*

[Of Mr. Gibson's specimens, those dried quickly, by means of artificial heat, are by far the most beautiful as regards colour and general appearance ; the foliage of the *Asperula* No. 3 and of *Barbarea stricta*, has a perfectly natural hue, and their flowers appear to be not at all injured for examination. The specimens which had been immersed in hot water, have the least natural appearance of the whole number, and their flowers seem to be much injured. The specimens preserved by Mr. Shepherd, which Mr. Gibson has had the kindness to forward, have the colours of their flowers most beautifully preserved, but, with the exception of *Sagittaria Sagittifolia*, they do not look quite *natural*. This may perhaps arise, in some measure, from their being gummed down to the papers on which they are placed, whereby the petals may have been injured. The *Sagittaria* and *Epilobium* are decidedly the most beautiful of the whole, and *Orchis latifolia* the least so, its flowers being apparently much injured. In a late number of the 'Annals and Magazine of Natural History,' is an article on drying plants by means of paper saturated with a solution of chloride of lime ; this being a deliquescent salt, the moisture of the plants is said to combine with it, and while the paper thus becomes wet, the plants themselves are dried in a short time. After all, the only secrets in the art of preserving specimens of plants for the herbarium, are, to use plenty of paper, and to dry the specimens as quickly as possible, either by means of artificial heat or otherwise, with the application of only just so much pressure as will

prevent their shrivelling. The best specimens of *Ophrys apifera* we have ever seen, were placed in a book, where they remained, in a warm room, unnoticed and forgotten, until chance again brought them to light, perfectly dry, and with the delicate pink hue of the perianth beautifully preserved.—*Ed.*]

338. *Note on the Formation of a Herbarium.* I observed your correspondent's enquiry, regarding the formation of a herbarium, on the wrapper of the March Phytologist, and Mr. King's mode in reply to it in the May number (Phytol. 585). The principal objection which is attached to the latter, in my opinion, is, that it does not present sufficient facilities for the progressive enlargement of the collection; for if it is not completed before the arrangement is commenced, blank pages of the "guard book" must be left in different places for such additions; and these cannot be calculated with any degree of certainty, provided the collector aims at anything like an extensive herbarium, besides having an unfinished appearance, and so many blank leaves being very inconvenient for reference. Mr. K.'s method is an excellent one when arranging a herbarium to which no additions are to be made, as in local herbaria, &c. The plan which I have adopted in arranging a rather extensive collection is the following. In all the best herbaria the specimens are *glued* to the paper; that this is far preferable to securing them by slips or threads, as practised by some, does not, I think, admit of a doubt; besides making the specimens more easy of reference, by facilitating their *turning over*, it is more expeditiously accomplished, and the constant breaking up of the slips is obviated; besides, there are many plants which cannot be well attached by that means, such as the leaves of *Atropa Belladonna*, the very compound ones of many *Umbelliferæ*, &c., where, if the slips are applied in sufficient number to fasten the specimen fairly to the paper, both the beauty and character of it are greatly diminished; then again the fruit of grasses, *Carices*, *Compositæ*, the petals of roses, and other species bearing fugacious flowers, are almost sure to be eventually lost. Under all these circumstances, I think it will be evident that fastening them in this manner is much superior to the other method—by slips of paper: thin *glue* should always be used; never gum or paste, as these are apt to turn mouldy, and also, after a time, to give way; it should be carefully applied with a pretty large and soft brush, and immediately committed to the press and paper used for drying plants, to remain there until thoroughly dry: the paper I use is large printing paper, thick and strong, about seventeen by nine and a half inches: I have some of the half sheets cut in two, and others in four; the folio size being intended for such plants as the *Rumices*, most ferns, grasses, *Carices*, &c.; the quarto for those

of the size of *Sedum Telephium*, *Geraniums*, &c.; and the octavo for all such small species as the *Arenarias*, *Saxifrages* and *Sedums*: in this way only one specimen is put upon each piece of paper. I have then a sheet of coarse stiff cartridge paper for each *species*, about a fourth of an inch larger every way than the other sheets: within this is laid the specimen or specimens glued to the other paper, with the station, date, or any other particulars, written on the latter; then on the lower left hand corner of the sheet I write the name of the species, and include all belonging to the same genus in another rather larger sheet, on which are written the name of the genus, class, order &c. The genera may be arranged according to the system adopted by the collector, and made up in tolerably small bundles, according to Mr. King's plan, but not *bound* at the back, but secured instead by strings, or straps and buckles, at each side: this mode of arranging a herbarium I find to be the most convenient for reference and enlargement, as well as the most economical, and the collection admits of being laid much smoother and flatter than if the leaves of paper were all of one size. It is desirable sometimes to have specimens *loose* for examination; indeed this is almost the only recommendation urged in favour of having them only partially fastened to the paper: in all *doubtful* or interesting plants it is very necessary to have at least the most essential parts loose; and a piece of paper, folded somewhat like a letter-envelope, and fastened by a wafer or a little gum to any part of the inside of the *species-sheet*, should always contain the flowers and fruit of the *Umbelliferæ*, *Carices*, *Cruciferæ*, &c. &c. — *Thomas Edmonston, jun.; Balta Sound, Shetland, June 15, 1843.*

339. *Note on drying Plants for the Herbarium.* As I am on the subject of herbaria, allow me a few words on the *drying* of plants; however simple the operation, it is one by no means well understood. I shall mention the way which in my hands seems to take up least time and trouble, and to dry plants more perfectly than any other I have made trial of. It appears to me that one cause of our seeing so many imperfectly and clumsily dried specimens, is from botanists not using enough paper between the layers of specimens, and from not applying sufficient pressure *at first*. I never employ less than twelve sheets of thick absorbent paper for any plants, twenty-four for strong or succulent species, and a board between every layer or two of specimens; the weight at first ought generally to be not less than two cwt. This pressure very speedily expels the moisture from the plant, without giving it time to shrivel up or change colour: the specimens lie in this way one, or perhaps two, days, and are then taken out and

all the paper changed, and half the weight or less applied for two or three days: no more changing is necessary, and in a week at most from the time of gathering the plants will be found to be perfectly dry. If any one would import the thick coarse paper used by German botanists for drying plants, and which we here never see unless coming with plants from that country, it would be conferring a great boon on British botanists, for the great superiority of the German specimens is evidently greatly owing to the superior paper for drying which they possess. I made a trial of this paper among some experiments instituted on the drying of plants last summer, and I found they dried in half the time required for those preserved with the common kind of paper. In conclusion, I would beg to caution inexperienced botanists against using hot water in the preparation of *Sedums*, *Agraphis*, and other succulent plants, or indeed for any specimens whatever, for, however well they may look, they are entirely useless as *specimens*, for the hot water utterly spoils the character of the plant, it being impossible to dissect and analyse them, and, unless pasting plants on the walls of rooms comes into fashion, I am quite at a loss to conceive the use of it: by proper care and attention to having the plants *quite dry* before committing them to press, specimens may be preserved fully as beautifully, and infinitely more usefully than by the *hot-water cure*.—*Id.*

340. *Note on Cerastium latifolium.* I am sorry to find that Mr. Watson (Phytol. 586) does not agree with my views of the *Cerastium* described by me, (*Id.* 495). I am also sorry to find Mr. W. confining his remarks to the least important point characterized, viz. the form of the leaves, and the sum of the proof seems to be brought from a garden specimen: all the characters derived from the length of the peduncles, the bracteæ, sepals, capsule, pubescence, &c., are dismissed without comment; Mr. W. merely saying “that the other characters *appear* as little constant as those taken from the leaves.” Now having examined such a multitude of specimens from different stations, collected at different times, I feel convinced I am correct in saying that the characters I have given are really constant: they are such as are employed, without a doubt, in distinguishing other species of *Cerastium*, and better will rarely be got among the *Caryophylleæ*. The main point urged by Mr. W. is, that cultivated specimens of the Scotch “*C. alpinum* and *C. latifolium* bear leaves equally short, broad and obtuse,” as those I have figured belonging to my *C. latifolium*. Now every botanist knows that plants removed from their native mountains to a garden, can never be depended on for retaining their

characteristics. I have seen in the Edinburgh Botanic Garden, and elsewhere, plants of *Cerastium alpinum* raised from roots from Clova, in which the leaves were *linear-lanceolate*, and hardly to be distinguished from those of some narrow varieties of *C. triviale* or *atro-virens*; yet no one would for a moment dream of considering this a normal form. I cannot help thinking that Mr. Watson is misled, partly by the garden plants he alludes to, and partly by seeing some variations in the form of the leaves of the Scotch plants: thus he says that in "a specimen of *C. latifolium* (of British authors), gathered on Ben Lawers, there are lanceolate-ovate or *almost* orbicular leaves from the same root." I have seen considerable difference in the breadth of leaves of *C. alpinum*, but the nearest approximation to "orbicular" I have ever met with was somewhat broadly-ovate, and the character "ovate or ovato-lanceolate" includes all the varieties I have seen in wild specimens. My *C. latifolium* has come up in the old station, within a few hundred yards of my residence, by thousands, this year; and in examining numerous individuals some days ago, for the purpose of making a drawing and description of it for the 'Supplement to English Botany,' I am more than ever struck with the great difference in colour, habit, &c., as well as more important points and differences. I shall be happy to supply any of your correspondents with specimens of this interesting plant.—*Id.*

341. *Unusual habitat of Limosella aquatica.* In the few localities in which I had gathered the *Limosella* previously to the present month, the plant was growing either wholly in water, or on the sides of pools and ditches which had recently been under water. Yesterday I found about a dozen specimens of this plant, just coming into flower, on the surface of my kitchen garden, intermingled with young plants of *Veronica Buxbaumii*; the seeds of the latter having been sown by myself, on the same spot, in the month of May, at which time no plants of the *Limosella* were observed, nor had I ever before seen this species in my garden. The ground has been used as a kitchen garden for the last eight years, and was several years in cultivation as arable land before its conversion into a garden. It was originally marshy, but was drained and enclosed many years ago, and is now so little disposed to retain its former character, that my gardener usually finds it necessary to water his crops copiously in spring and early summer. In the present year, however, abundant and almost daily rains through a part of May and June, kept the ground more humid than was desired; and apparently the seeds of the *Limosella* had germinated during those weeks of wet weather. How

these seeds reached the spot on which the plants were found I am quite unable to say, but would deem it not improbable that they had been carried to the garden in water from a neighbouring pond, in which I have never seen the *Limosella*, but to which its seeds may have been borne by a flood-stream two years ago, from a more distant pond, within which the plant has been repeatedly observed. The alternative conjecture, that the seeds had remained dormant in the soil of the garden for twenty or thirty years, seems less likely to be the true explanation. But by whatever way the seeds contrived to be on the spot in question, the fact of the *Limosella* being found as a weed on cultivated ground is worthy of record, as a marked instance of change from the ordinary habitat of an "aquatic" plant.—*Hewett C. Watson ; Thames Ditton, June 30, 1843.*

342. *Note on Symphytum asperrium.* One fine evening last month during a stroll along the banks of the river Tame, in Cheshire, I fell in with a quantity of *Symphytum asperrium*, apparently wild, growing in a meadow. There is no garden in the vicinity, from which it could have escaped, indeed I have never seen it cultivated in the gardens about here, though I am aware it is occasionally to be met with. Perhaps some of your correspondents may know something about the plant, and on whose authority it was placed in the Supplement to Francis's Catalogue.—*J. Sidebotham ; Manchester, July 7, 1843.*

343. *New habitat for Lepidium Draba.* This plant is of such rare occurrence, and so local, as very seldom to be brought within the reach of the collecting botanist; indeed, unless recent research has multiplied localities, I know but of two spots where the plant may be certainly found in Britain. Hence I was much pleased at discovering a new colony of the *Lepidium Draba*, a few weeks since, and the announcement may perhaps gratify other botanists. What is most remarkable in the matter is, that I feel certain the plant was never there until the present season, as I have doubtless passed the spot it now occupies almost a thousand and one times within the last few years, although this season thirty or forty plants have suddenly sprung up in one particular place. I am almost afraid to indicate the exact locality, lest a file of men from the Worcestershire Natural-History Society should reduce the whole colony to mummies; but suffice it to say that it grows on the glais of the embankment of the new road made about seven years since, to the iron bridge over the Teme at Powick, and not near any habitation or ploughed field. It also grows mixed up with the quick of the hedge planted since the road was formed, in company with a rank growth of *Malva sylvestris*, *Sisym-*

brium officinale, &c., and therefore I think the agency of Nature *only* has located the plant there, however that may have been exercised. I am the more induced to mention this, as I did not discover this *Lepidium* in time to include it in my *Malvern Plants*,* which I should otherwise have done, since its habitat is on the *western* side of the Teme, within a little more than five miles of Great Malvern. As I have often poured forth maledictions on road-surveyors for eradicating plants, it is but fair to set down this occurrence as *per Contra, Cr.* in their favour; and I dare say the embankments of railways will in time produce some *good things*. I beg leave to say that I have in fairness left between twenty and thirty plants of the *Lepidium*, if not more, to perfect their seeds, so that if the locality should become unproductive in future, it will not be my fault.—*Edwin Lees; Church Hill Cottage, Powick, near Worcester, July 12, 1843.*

[The parallel case of *Lavatera Olbia* springing up on the embankment of a new road in Epping Forest, has been recorded by Mr. H. Doubleday, (*Phytol.* 265); there is, however, this difference, that we are not aware of any other British station for the *Lavatera* being on record, while *Lepidium Draba* has previously occurred in Glamorganshire (*Phytol.* 106), Kent and Cheshire.—*Ed.*]

344. *Enquiry respecting Equisetum arvense and E. Drummondii.* Perhaps you will allow me, through the medium of your periodical, to enquire of your readers whether *Equisetum arvense* or *E. Drummondii* be the more glaucous of the two; as I never had the pleasure of seeing *E. Drummondii* in a living state. My reason for making this enquiry is, that Sir W. J. Hooker tells us (in ‘*British Flora*,’ 1st and 5th editions) that *Drummondii* “is greener and less glaucous” [than *arvense*]. Francis, speaking of *E. Drummondii*, says, “this plant differs from *Equisetum arvense* in its more glaucous, greener colour.” I hope to be excused for making this enquiry, for surely, such books as those I have quoted were written for the purpose of being understood. I think it can be no printer’s error in the ‘*British Flora*,’ or it would have been corrected before it had got through five editions.—*Samuel Gibson: Hebden Bridge, June 13, 1843.*

345. *Enquiry respecting Carex distans.* While on the subject of enquiries, perhaps I might be allowed to ask, what is to be understood by “the barren stalks,” in the description of *Carex distans* in ‘*British Flora*,’ 4th and 5th editions? As this is a new term among the *Carices*, I hope to be excused for making the enquiry. I should have taken this for an error of the press, had I not found the same

* *Plants of the Malvern Hills.* By EDWIN LEES, F.L.S., &c. Tilt & Bogue, Fleet Street: Lamb, Malvern. A notice of this book in our next.

words used by two different authors; first by Sir W. J. Hooker, in the 4th edition of his 'British Flora,' and then by Leighton in his 'Flora of Shropshire,' and again by Hooker, in the 5th edition of his Flora.—*Id.*

346. *Notes on Epipactis latifolia, &c.* I am sorry that I omitted, in the last Phytologist, to call the attention of botanists to *Epipactis latifolia*, and its closely allied species, or varieties, or whatever they may be; but it is not now too late to institute an enquiry, and I earnestly hope that all botanists who have an opportunity of studying the plants *in a living state*, will avail themselves of that opportunity, and favour the public with the result of their investigations. Those who have seen an extensive series of specimens of the plant known as *Epipactis latifolia*, are well aware of the great variety of form and habit which it assumes, even without including the forms of the less variable but still inconstant *E. purpurata*: but if these are combined with the plant usually known as *E. latifolia* and its acknowledged varieties, the transition from the one extreme to the other becomes more gradual, and the difficulty of distinguishing between the intermediate forms is consequently greatly increased. Ray seems to have doubted if there might not be more than one species confounded under his *Helleborine latifolia montana*, since he remarks that he has observed this plant to bear green flowers, but that Dr. Plot and the Oxford botanists find one, the flowers of which are of a still deeper purple than those of *Helleborine flore atro-rubente* (Smith's *Epipactis latifolia* *β.*), adding, "whence it is either a striking variety, differing in the colour of the flower, or the two plants are distinct species." Smith also says that "the reputed varieties of *E. latifolia* perhaps require more scientific examination than they have hitherto received." In Leighton's 'Flora of Shropshire,' under *Epipactis latifolia*, Mr. Babington has given the characters of two plants:—1. *E. latifolia*, *All.* and *Eng. Bot.* 269, the normal *E. latifolia*, with very broad leaves, and green flowers with a purple lip; and, 2. *E. viridiflora*, *Reich.*, with only the lowest leaves broad, and the flowers "green, tinged with purple." The latter plant is referred by Fries, as a variety, to his *E. media*; with the remark that if attention be paid only to the colour of the flowers, it must necessarily be confounded with *E. latifolia*, from which it may always be known by being more slender in all its parts; the leaves are also gradually narrowed to the apex, not abruptly acuminate, as in *E. latifolia*. Mr. Babington has studied the plants referrible to *E. latifolia*, with great care, but without being able to satisfy himself as to their identity or distinctness. In his 'Manual,' under *E. latifolia*, *All.*, he observes that

“there are four very different plants included under this species, one or more of which is probably distinct;” and gives the following characters:—

“a. *E. latifolia*; leaves broadly ovate longer than the internodes, upper l. ovate-oblong, lower bracts longer than the flowers, *terminal division of the lip roundish-cordate obtuse with a small recurved point* shorter than the broadly ovate sepals and petals ‘its keel not crenate above.’—*E. B.* 269.—Leaves ovate, very broad, the very uppermost sometimes lanceolate-attenuated; lowermost leafless sheaths close. Lower bracts foliaceous lanceolate attenuated. Flowers green with the lip purple, sometimes all purple. Peduncle shorter than the downy germen. Lobe of the lip broader than long, crenate.

“b. *E. media*, (Fries); l. ovate-oblong the upper ones lanceolate acute, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute as long as the lanceolate sep. and pet.* its keel ‘crenate above.’—*R. Icon.* f. 1141, 1142.—Narrower and more elongate in all its parts than *E. latifolia*, only the very lowest l. ovate, intermediate lanceolate, upper l. lanceolate attenuated and merging gradually into the linear-lanceolate bracts; sheaths funnel-shaped. Fl. “green tinged with purple.” Peduncle shorter than the downy germen. Lobe of the lip longer than broad crenate.

“c. *E. purpurata*, (Sm.); l. ovate-lanceolate the upper ones narrower, lower bracts longer than the fl. and fr., *terminal division of the lip triangular-cordate acute shorter than the ovate-lanceolate sep. and pet.* its keel plicate-crenate above.—*E. B. S.* 2775.—L. becoming gradually narrower as they ascend the st. and merging insensibly into the linear-lanceolate bracts. Fl. “yellow-green tinged with pink.” St. and l. much tinged with purple. Peduncle shorter than the downy germen. Lobe of the lip longer than broad, entire, exactly like that of *E. media*, but with a more attenuated point.

“d. *E. ovalis*; l. ovate-oblong acute the upper ones lanceolate, 1 or 2 lowest bracts longer than the fl. but shorter than the fr., *terminal division of the lip transversely oval acute* as long as the ovate acute sep. and pet. its keel plicate-crenate above.—*Hel-leborine &c. No. 2. Ray*, 383?—L. small; sheaths funnel-shaped (as far as I can judge from dry specimens). Bracts all much smaller than even the uppermost leaf. Fl. blackish-red, peduncle shorter than the downy germen. Lobe of the lower lip exactly transversely oval, crenate, with a small acute point and an elevated folded and crenate triangular keel above. St. 6—18 inches high.”—*Bab. Man. Brit. Bot.* 295.

Of the above four forms, a. appears to be the most common; of this I possess specimens from Reigate Hill, Surrey; East Marden, Sussex; and from near Geneva: and believe the same form to occur very frequently in some parts of Epping Forest and on the weald clay of Sussex. I have a single specimen of what Mr. Babington considers to be the second form, b. from near Chipstead, Surrey. The third, c. is not unfrequent in the woods on the chalk hills of Surrey; I possess it from near Reigate, and have seen it in the copses below Crawley, Sussex; these are identical with Mr. Forbes’s Woburn plants, as figured in *Eng. Bot. Suppl.*, although I have some doubt of their being the same as Sir J. E. Smith’s specimen, described as his *E. purpurata*. Of d. I know nothing, except from a specimen from Giggles-

wick, near Settle, kindly presented by Mr. Babington, and another from Gordale, near Settle, labelled "*Epipactis latifolia*, var. β ." It may here be remarked that the plants must be studied in a *recent state*. Mr. Babington observes, "The points that require attention in these plants are *the shape of the terminal lobe of the lip*, with the character of its upper surface,—*shape of the petals and sepals*, and the character and form of the sheaths on the stem;" these points cannot be properly investigated in dried specimens.—*Geo. Luxford*; 65, *Ratcliff Highway*, July 22, 1843.

347. *Note on the Gravesend locality of Pæonia corallina.* We are so accustomed to consider that Master Gerarde was actuated by entire good faith in making known his discoveries, that it is perhaps hardly fair to publish anything in disparagement of his fair fame; wherefore in mentioning the following naughty trick, with the doing of which he is charged by his emaculator, Johnson, it is more for the purpose of soliciting information as to the present state of the Gravesend locality of his "*Male Peonie*," than for any other purpose: at all events the passages are amusing. Gerarde says — "The Male Peonie groweth wild vpon a conny berry in Betsome, being in the parish of Southfleet in Kent, two miles from Grauesend, and in the ground sometimes belonging to a farmer there called *Iohn Bradley*." To this Johnson adds, — "‡ I haue beene told that our author himselve planted that Peonie there, and afterwards seemed to finde it there by accident; and I doe belecue it was so, because none before or since haue euer seene or hard of it growing wilde in any part of this kingdome. ‡" — *Ger. Em.* 1983. The Steep Holmes station was not known then.—*Id.*

348. *Mr. Murcott's Plan for drying Plants.* The following is the mode of drying plants by means of a deliquescent salt, before alluded to, (Phytol. 674).

"The plants to be dried are placed between sheets of paper containing chloride of calcium, contact with the salt being prevented by an intervening cushion on one side, and a layer of fine calico on the other. Two thin boards support the apparatus, and are held together by a couple of buckled tapes; the whole is enveloped in oil cloth to exclude atmospheric moisture. The packet need not be opened till the plants are dry enough to be removed, or fresh plants require to be introduced. The time and trouble of frequently removing drying plants into fresh papers, as in the ordinary method, are both saved; for though the packet be full of plants, it need not be opened even for several months. Plants in general dry much faster than in blotting paper, and their colours are much more frequently preserved: the use of the pad prevents injury to the soft parts of plants, and hinders their corollas from shrivelling up in drying, without applying so much pressure as would unfit any part for subsequent examination.

"Brown paper, so thick as to prevent the transmission of light, with a smooth surface, and not much sized, is better fitted to hold the salt than blotting-paper, which

it greatly surpasses in durability and tenacity in a damp state. The paper is impregnated with the salt by dipping it (a sheet at a time) in a solution formed by dissolving $13\frac{1}{2}$ oz. of the crystallized chloride of calcium in one (imperial) pint of water. Where the chloride is expensive, or difficult to be procured, it may be prepared by saturating hydrochloric acid with fragments of marble, or even with common chalk: the acid may be of commercial strength or slightly diluted with water; but the vessel containing it should be capable of holding several times the quantity, on account of ebullition. After saturation the liquid should be filtered, and diluted with water till its specific gravity falls to 1.188; this may be ascertained most readily by a glass bead of that number. The sheets as they are dipped (a large tea-tray is very convenient to hold the liquid) should be carefully laid one upon another, and at length so much liquid pressed out that they will not drip when held before a fire to dry. I dry them before a fire, but a friend suggests that much time and trouble would be saved by drying them in a baker's oven. A solution of this strength will communicate as much of the salt as the paper can retain without showing an exudation on its surface when applied to use and its complement of moisture absorbed, while the excessive brittleness occasioned, if the liquid be much more concentrated, soon splits the back of every sheet; and the drops of liquid that appear as the paper grows very damp might deter a beginner from following the method.

"In applying the paper to use, I place about three sheets between every lot of plants: the plants do not touch the paper, but lie on a cushion of cotton wool, and are covered with a piece of 'glazed lining' calico, or similar material; or they are placed between two pieces of flannel; of course the same surface of the cotton or flannel should always be applied to the paper, to prevent communication of the salt to the plants. I have prepared some sheets of paper on one side only, but have not yet given them a trial. The pads do not much affect the quick drying, but they preserve soft parts from injury, and render a very slight pressure sufficient. When I wish to preserve the corolla of a plant in the best possible manner, I place under and above it a little finely opened cotton wool. When very watery plants are to be dried, such as *Hottonia palustris*, I would place an extra cushion of cotton wool over them. Plants seem to dry best at a temperature of about 100° Fah. When the papers have taken up as much moisture as they can absorb, they may be re-dried before a fire, if the method suggested by a friend (drying at a baker's oven) should not be accessible. *Orchidaceæ* and *Scrophulariaceæ* are bad driers, even with the aid of chloride of calcium; but I find that *Listera ovata*, and probably some others, may have their colour perfectly preserved if immersed for a few seconds in a nearly boiling but very weak solution of carbonate of soda, then wiped and placed between the papers. This remark may perhaps induce some one with more leisure than myself to experiment on various ways of drying plants of these natural orders.

"The disadvantages of the method are, in my opinion, inconsiderable when compared with the saving of time and trouble, and the much better preservation of the specimens. Brown paper is not expensive. Crystals of chloride of calcium may be bought of the Liverpool Apothecaries' Company, and perhaps elsewhere, at 5d. per lb., or if prepared at home, the expense will be about the same. The cotton-wool cushions cost 1d. or $1\frac{1}{2}$ d. each; flannel is more durable, but more expensive. The cushions render the apparatus bulky, but this is only an inconvenience in travelling, and then the far greater inconvenience of drying papers at inns in the summer months is experienced about once in three weeks instead of once a day, or every other day. Such

at least is the result of my experience; I have employed the salt in the manner described for two years and part of a third, for I commenced with it in 1840. The great dryness and consequent brittleness of the plants unfit them for the immediate examination of concealed parts, but exposure to a moist air for a short time would diminish their fragility in a sufficient degree." — *Ann. and Mag. Nat. Hist.* xi. 33.

The author recommends the use of the same salt in the cabinet containing the herbarium, in order that the collection may be preserved in a perfectly dry state.—*Ed.*

349. *Mr. E. Quekett's Observations on the Ergot of Grasses.* We gave the title of this paper in our report of the Proceedings of the Linnean Society, (Phytol. 559); the following is an extract from the recently published number of the Society's 'Proceedings.'

"In March, 1840, twelve healthy grains of rye, of wheat and of barley, were placed in a shallow glass vessel containing a sufficient quantity of distilled water to moisten them, and covered with a glass shade. When germination commenced, an ergot of wheat of the preceding year was immersed in the water, the sporidia on its surface were detached, and the ergot itself was then removed. The same experiment was performed with sporidia obtained from an ergot of *Elymus sabulosus*. Several days afterwards, when the leaves had attained a length of three or four inches, the young plants were conveyed into the country and planted side by side in a garden. At the period of harvest there remained alive only four plants of the rye (one of which had been infected from the ergot of *Elymus*, and the remaining three from that of wheat), three of the barley, and four of the wheat. Of the rye scarcely a single ear produced healthy grains, the paleæ being generally quite empty; but nine of the ears contained ergots, some furnishing only a single specimen, and others as many as six. The ears of the barley were filled with healthy grains, and only one apparently diseased grain was detected; while in the wheat the ears were full and without disease.

"As in these experiments no grains from the same sample were sown which had not been subjected to the influence of the sporidia of the fungus, Mr. Quekett made in the following autumn another experiment with the view of supplying this deficiency. Twelve grains of rye, of wheat and of barley, were again made to germinate under similar circumstances to the last, and the sporidia obtained from the surface of one of the ergots of rye produced in the first experiment were diffused in the water in which they grew. These were planted in October on the same estate, but not within half a mile of the former spot; and twelve healthy grains of each kind, which had been carefully kept apart from the others, were planted in the same locality. Very few of the plants arrived at maturity, and in August last there remained of the infected plants only two of rye, two of wheat, and one of barley; and of the uninfected plants one of each kind. On each of the plants of rye which had been subjected to the influence of the sporidia an ergot was discovered, and the ears, as before, were almost entirely devoid of healthy grains; while the plants of wheat and barley subjected to the same influence produced perfect ears and healthy grains. The three plants of rye, wheat and barley, planted at the same time, without exposure to the sporidia of the fungus, presented no unhealthy appearance.

"Mr. Quekett argues that all the grains of rye subjected during germination to the influence of the sporidia of the fungus, in both sets of experiments, having pro-

duced plants infected with ergot, while the plants derived from grains not so subjected escaped disease, a convincing proof is afforded that their infection could not have been the effect of chance, but must have resulted from the artificial introduction of the sporidia; and that the infection of the rye only, while the wheat and barley escaped, is to be attributed to the greater susceptibility of the rye to infection, as proved by the much greater frequency of the production of ergots in that species of grain."—*Ed.*

ART. CLX.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

May 2, 1843.—The Lord Bishop of Norwich, President, in the chair.

Mr. James Backhouse presented specimens of fruits and seeds from New South Wales, Van Dieman's Land and Tahiti. Specimens of two rare species of *Parmelia* from the New Forest, Hants, were presented by Capt. T. Jones, M.P., F.L.S.

M. Achille Richard and M. Joachim Frederic Schouw, were elected foreign members of the Society.

John Salt, Esq., M.D., was elected a fellow, and Mr. Thomas Sansom an Associate of the Society.

The President then announced that in consequence of the lamented decease of His Royal Highness the Duke of Sussex, the meeting would adjourn.

Anniversary, May 24.—The Lord Bishop of Norwich, President, in the chair.

The Auditors' Report of the Society's income and expenditure during the past year was read, showing a balance in the hands of the Treasurer of £189. 7s. 4d.

The following members were reported to have died during the past year:—The Rev. Jas. Dalton, M.A., John Latham, Esq., M.D., James Lynn, Esq., M.D., J. Gage Rokewood, Esq., and the Rev. Thos. Newton, Fellows: Mr. Andrew Mathews and Mr. Daniel Cooper, Associates. Since the last anniversary there had been elected 18 Fellows, 2 Foreign Members and 6 Associates.

The President having proposed that the King of Saxony should be elected as an Honorary Member of the Society, the question was put to the vote, and His Majesty unanimously elected.

Edward Forster, Esq. having taken the chair, the members present proceeded to ballot for the Council and Officers for the ensuing year. Mr. Suttor, Dr. Lankester and Dr. M'Intyre were appointed scrutineers, when the following gentlemen were declared to be duly elected Members of the Council:—Arthur Aikin, Esq., the Rev. F. W. Hope, W. H. Lloyd, Esq., Richard Owen, Esq., and Wm. Yarrell, Esq., in place of Thos. Bell, Esq., Lord Beverley, R. I. Murchison, Esq., John Parkinson, Esq. and J. O. Westwood, Esq., who retire from the Council.

The ballot for officers having closed, The Lord Bishop of Norwich, Edward Forster, Esq., J. J. Bennett, Esq., and Richard Taylor, Esq., were severally declared to be re-elected President, Treasurer, Secretary and Under-secretary of the Society.

June 6.—Edward Forster, Esq., in the chair.

Thos. Turner, Esq. and James Tulloch, Esq. were elected Fellows of the Society.

Read, a 'Description of *Peltophyllum*, a new Genus of Plants allied to *Triuris*, *Miers*; with remarks on their affinities:' by George Gardener, Esq., F.L.S.

June 20.—Edward Forster, Esq., Vice-President, in the chair.

The Secretary stated that he had received instructions from the President to nominate Robert Brown, Esq., Edward Forster, Esq., Sir Wm. Jackson Hooker, and Thos. Horsfield, Esq., M.D., to be Vice-Presidents for the ensuing year.

Read, 'Notes on the Forest Trees of Australia,' by George Suttor, Esq., F.L.S.

The Society then adjourned until Tuesday, November 7.

BOTANICAL SOCIETY OF EDINBURGH.

This Society held its last meeting for the season, on Thursday, July 13, at the Botanic Garden: the President, Dr. Neill, in the chair.

After a delightful walk through the gardens, during which Prof. Graham pointed out the objects most worthy of notice, the meeting assembled in the class-room for business. Donations to the library were presented from Edwin Lees, Esq., Worcester, and Professor Forbes, of London: and several valuable parcels of British and foreign plants were announced.

The papers read, which were mostly of a technical character, were:—

1. On the genera *Gomphonema* and *Meridion*. By Mr. John Ralfs, Penzance.
2. On four new species of British *Jungermanniæ*. By Thomas Taylor, M.D., Dunkerron.
3. On a species of *Fungus* found imbedded in peat, near Stirling. Communicated by Mr. Peter Mackenzie, West Pleau.

The attention of botanists has recently been directed to the importance of studying the vegetable remains imbedded in peat-mosses, as calculated to throw light on the early vegetation of the country, and the successive changes it has undergone. For this object, communications like that from Mr. Mackenzie are much to be desired.

A letter was also read from Dr. Joseph Dickson, St. Helier's, Jersey, mentioning some interesting additions to the Flora of that island, which he had lately discovered; and remarking, that he felt convinced it contains many other species still unknown to botanists.

BOTANICAL SOCIETY OF LONDON.

July 7, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Donations to the Library were announced from the American Philosophical Society, the Academy of Natural Sciences, Philadelphia, the Dublin Natural-History Society, the Shropshire and North Wales Natural-History Society, Dr. Dickie, Dr. Gavin Watson, Professor Forbes, Professor Meneghini, M. Schrenck and Mr. Chatterley.

Dr. Gavin Watson and Mr. Robert Kilvington of Philadelphia, presented a very large collection of North-American plants. The President presented some plants from Singapore, and British plants had been received from Dr. Ayres and Miss Beever.

Mr. T. Twining, jun., exhibited a large collection of living cultivated plants from Twickenham.

Read, 'Observations on *Dicranum Dillenii*, *Taylor, MS.*,' by Dr. Thomas Taylor.

As Dillenius is the first author who directed the attention of botanists, seventy-five years ago, by a separate figure, to the present moss, his name has been ascribed to it; and yet it is evident that Dillenius, as well as all subsequent muscologists, have confounded it with *Dicranum scoparium*, *Linn.* Nor is this without excuse, when we consider the strong resemblance in the habit of both, their being nearly equal in size, their very general occurrence in Europe, as well as the northern parts of America, and particularly their frequently growing together in the same woods, or on the same banks, in more open and mountainous situations. Besides, the present plant varies considerably in appearance, so that the one state, well figured in 'English Botany,' t. 354, as *Dicranum scoparium*, would scarcely be supposed to belong to the same species as another state, equally well represented by Schwaegrichen in his Supplement, t. 42, under the same name. It is the wide limits within which its aspect changes that probably weighed with the editors of '*Muscologia Britannica*,' to give both species, well-represented, as varieties only of *Dicranum scoparium*.

Submitted however to a rigid scrutiny, Dr. T. apprehended that the following distinctive marks would be found to be constant, and if so, they would appear to be sufficiently numerous and sufficiently grave to establish the present species.

1. *Dicranum Dillenii*, though frequently differing in size, is usually the smaller moss.

2. Its leaves are not constantly, and but slightly, turned to one side, while in *Dicranum scoparium* they are more loosely set, and uniformly falcato-secund.

3. In the present species the pedicels are solitary, in the other aggregated within the same perichætium.

4. In the former the pedicels are opaque, even immediately below the capsule, at the period of full maturity; they are also reddish below and brownish above: while in the latter, even when full grown, they are somewhat pellucid, and of a pale straw colour.

5. In the former, the capsule is erect below and slightly curved above, is nearly equal, has no projecting struma, yet with an apophysis, pale brown when ripe: in the latter, the capsule is curved, even long before the fall of the calyptra, is very unequal, has a projecting struma, and is green when just ripe.

6. In the former, the operculum is gradually acuminate, and falls after the calyptra; while in the latter, the operculum, with a broad base, is suddenly acuminate, and usually falls in and with the calyptra.

7. In *Dicranum Dillenii* the teeth of the peristome are narrower and more opaque.

8. The stem is often interruptedly leafy.

9. The leaves are shorter, and have their points less curved.

10. The parts of fructification are larger in proportion to the size of the plant.

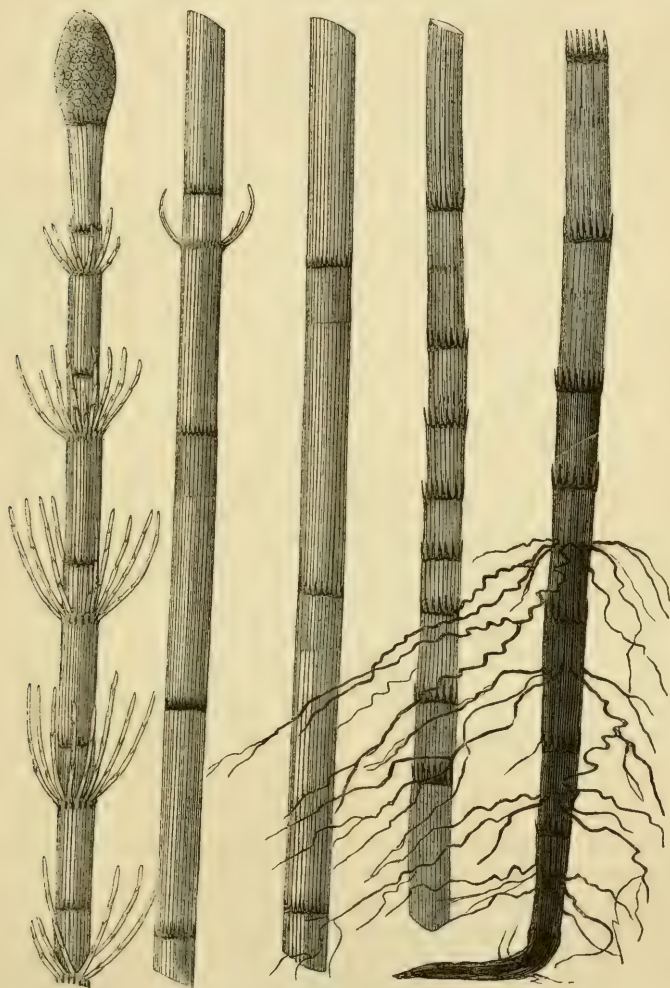
In the Museum of the Society occurs a *Dicranum* from Newfoundland, from the late Mr. Lambert's collection, which, being barren, and consequently not admitting of a comparison of the parts of fructification, Dr. T. would not venture to separate from *Dicranum Dillenii*; and yet its densely aggregated and shorter stems, its shining lustre, and its less patent leaves, would demand the greatest attention, and would indicate it as at least a very remarkable variety; but when it is considered that its leaves are shorter, wider in the lower half, with their points more canaliculate, and the nerve serrated at the back, it must be confessed that its claims for separation are very strong.

— *G. E. D.*

THE PHYTOLOGIST.

ART. CLXI.—*A History of the British Equiseta.* By E. NEWMAN.

(Continued from p. 630).



WATER EQUISETUM.

EQUISETUM FLUVIATILE, *Linneus*.

Equisetum limosum, *Smith, Hooker, Babington*.

THIS species is by far too generally distributed to allow of my giving a list of habitats: it occurs very commonly in ponds and ditches, and occasionally in running streams, the roots and a portion of the stem being immersed in water.

Concerning the nomenclature of this plant Sir J. E. Smith has led us into an error, which, in a late number of 'The Phytologist,' I took some trouble to point out; and although I believe no one who has investigated the subject entertains the slightest doubt as to the fact that the species now figured on the preceding page is the *E. fluviatile* of Linneus, yet several eminent botanists prefer adopting Sir J. E. Smith's nomenclature to that of Linneus, on the ground that the former is now established by usage.

The medicinal properties of this plant have been so variously stated that they appear to contradict each other. With regard to its economical uses Linneus gives us, in his 'Flora Suecica,' a very definite statement that in Sweden it is cut up as food for cattle, in order that the cows may give more milk; * and in his 'Lachesis Lapponica' he observes that "the rein-deer feed with avidity on the great water horse-tail (*Equisetum fluviatile*), which the Laplanders call *Aske*, though it was in a dry state, and though they will not eat common hay. How unaccountably negligent" he continues, "are the Laplanders not to collect in the course of summer a stock of this plant, and of the rein-deer moss (*Lichen rangiferinus*), for winter fodder! They would then have some provision for the herd when the country is covered with an impenetrable crust of frozen snow, and not hazard the loss of all they are worth in the world."† There seems to be very contradictory evidence even within the range of our more immediate observation, as to its being eaten by horses, cows and sheep. I have seen it growing luxuriantly in ponds in Herefordshire, in situations accessible to cattle, but I never could perceive that a stem had been eaten; but more recently, in the ditches which intersect the rich

* Dissecatur in pabulum Boum, ut vaccæ lac copiosius præbeant. — Linn. 'Flora Suecica,' p. 368, n. 390.

† 'Lachesis Lapponica,' ii. 108, of Sir J. E. Smith's translation. The following parallel passage occurs in the 'Flora Lapponica,' p. 322. Rangiferi, Lapponum pecora, fœnum per hyemem non adsumunt facile, hinc Lappo noctes diesque eos per sylvas ducere tenetur. Obtuli circa autumnum redeuntibus ex longo itinere Rangiferis fasciculum fœni, et observavi eos hanc plantam seligere et adsumere, reliqua fere intacta relinquere. Annon itaque hocce Equisetum majorem œconomix lapponicæ usum adferre posset, incolis indicandum relinquo.

pasture land in the Isle of Dogs, I observed that nearly every stem within reach from the bank had been cropped at a nearly uniform height: horses, horned cattle and sheep, are constantly feeding in these meadows.

The roots of the water *Equisetum* are numerous, black, fibrous and sinuous: they spring from the bases of the submerged sheaths in a manner precisely similar to that of the branches, and those which originate near the surface of the water not unfrequently ascend for a time in the same way. The rhizoma is creeping, and extends horizontally in every direction, forming a matted mass in the mud of ponds and ditches where the plant occurs: it is of a brown colour, with jet black sheaths, which are rather more approximate than in ascending stems, but in other respects scarcely different. In winter, when the exposed portion of the stem of the preceding year is dead, the remaining portion becomes prostrate on the mud, still however retaining some of those lower branches which may be seen in the summer in a state of incipient development: these, together with others in a still younger state, form the ascending stems of the ensuing year.

The engraving at page 689 represents a moderately sized stem of the water *Equisetum*, of its natural size and proportions: a much larger might have been selected, but its representation would have been more difficult. The stem is perfectly erect, and about twenty-five inches in height, of which seventeen inches were above water and the remainder submerged. The submerged portion is smooth, the apical portion slightly striated (the striæ are much more distinct in immature and barren stems); its average diameter is a quarter of an inch: it is divided by transverse septa into thirty compartments, thirteen of which were above, and the remainder below the surface of the water: the internodes above water vary from three quarters of an inch to an inch and three quarters in length; those submerged are very obviously shorter. The sheaths are about a quarter of an inch in length; they are green, concolorous with the stem, and of nearly equal diameter, so that they clasp it very tightly: the teeth are sixteen to twenty in number, sharp-pointed, always distinctly separated, black or dark brown, and not unfrequently furnished with a very slender white membranous edge. There are six whorls of ascending branches: these rise from the base of the sheaths from the second to the seventh internode inclusive. The branches in each whorl vary from five to seventeen in number: they are divided into joints, varying from five to ten in number, and have from five to eight striæ with corresponding ridges, which terminate in sheaths having the same number of

brown-tipped teeth : the internodes of these branches are extremely variable in length, the first and last being the shortest : the branches also vary greatly in length.

The catkin is short, ovate, gibbous and terminal ; and the stalk on which it stands is short, scarcely exceeding in length the sheath which encloses it. I can discover no apiculus, the extreme summit being composed of scales similar to the rest : these are generally more than a hundred in number ; exteriorly they are quite black, but as they separate about Midsummer, by the ripening of the catkin, a common receptacle of ivory whiteness is disclosed.

This species is extremely subject to variation, so much so that the preceding description will only suffice to give a general idea of a fertile stem. Some are entirely unbranched, others sparingly branched, and others again more numerously branched : the site of the branches also varies, commencing variously at the second, third, fourth, fifth, sixth or seventh sheath, and forming two, three, four, five, six, seven or eight whorls. When quite unbranched, whether fertile or barren, I have no doubt that it is the '*Equisetum nudum lævius nostras*' of Ray,* the habitat, figure, &c., closely corresponding ; this form is also the *E. limosum* of Linneus, who, in his '*Systema Vegetabilium*,' quotes Ray's description and figure ; but it should also be observed that subsequently, in his '*Flora Lapponica*,' he omits all notice whatever of this unbranched form, evidently not considering it worthy of a place even as a variety. The fertile stem occasionally becomes proliferous, as in the preceding species, but much more rarely. Mr. Luxford possesses a specimen of this kind, found in a mill-pool, by the Bristol-road, Birmingham ; and in Sir J. E. Smith's herbarium is a Swiss specimen from Mr. Davall, as recorded in the '*English Flora*,'† where the author remarks that he has seen no such variety in England.

The barren stem is much longer than the fertile, and varies in an infinity of ways : among a few which I have lately gathered in the ditches of the Isle of Dogs, where this plant abounds, but can scarcely be said to flourish, I select the following as instances of variation.

A—is forty-three inches in length, and has thirty-seven joints, without a single branch.

B—is forty-five inches in length, and has forty joints : from the first to the nineteenth inclusive these are branchless, the twentieth has one branch, the twenty-first two branches, the twenty-second two, and the twenty-third to the fortieth inclusive one branch each.

* Synopsis, 131, tab. 5, fig. 2, a, b.

† English Flora, iv. 326.

C—is forty-five inches in length, and has forty joints : these, from the first to the fifteenth inclusive, are branchless, the sixteenth has one branch, the seventeenth has two branches, the eighteenth has thirteen, the nineteenth eleven, the twentieth nine, the twenty-first nine, the twenty-second ten, the twenty-third ten, the twenty-fourth seven, the twenty-fifth eight, the twenty-sixth two, the twenty-seventh two, the twenty-eighth two, the twenty-ninth one, the thirtieth three, the thirty-first none, the thirty-second two, the thirty-third none, the thirty-fourth one, the thirty-fifth and thirty-sixth none, the thirty-seventh two, the thirty-eighth two, and the thirty-ninth and fortieth none.

D—is forty inches in length, and has thirty joints : from the first to the sixteenth inclusive, and also the eighteenth, twenty-fourth, twenty-seventh, twenty-ninth, thirty-first, thirty-third, thirty-fifth, thirty-sixth and thirty-eighth are branchless ; the seventeenth, nineteenth, twenty-first, twenty-third, twenty-fifth, twenty-sixth, twenty-eighth, thirtieth, thirty-second, thirty-fourth and thirty-seventh, have one branch each, the twentieth has two branches, and the twenty-second three branches.

It should also be observed that stems, which at first are perfectly unbranched, often throw out a few scattered branches as the season advances, so that it is almost impossible to lay down any formula of branching that shall be at all constant.

In barren stems the apical joints appear to be invariably branchless and very much attenuated, while the median and lower joints are generally more or less branched : the inferior branches, especially when their insertion is submerged, are much stouter than the superior ones, and are often furnished with whorls of branches, like the main stems.

THE WOOD EUISETUM.

EUISETUM SYLVATICUM, *Linneus*.

THIS plant, although local, is very widely distributed, occurring in moist shady woods throughout the kingdom. In the vicinity of London it grows in several woods in the Hampstead and Highgate district : at the latter place it was observed as long since as the time of Lobel, who records the habitat in his ‘*Illustrationes Stirpium*,’* published in 1655, disguising the English appellation of ‘Highgate,’ under the scientific term of ‘*Altæ Portæ*.’ The other English habitats with which I have been furnished through the kindness of correspondents are so numerous that a mere list of them would exceed the space

* *Illus. Stirp.* 149.

I can afford for localities. In Scotland I observed it growing with peculiar luxuriance in the vicinity of Loch Fyne, in a little fir-wood on a hill side. The fructification had entirely disappeared, and each stem had attained its full development, and every pendulous branch its full length and elegance. Altogether I could have fancied it a magic scene, created by the fairies for their especial use and pleasure,



Equisetum sylvaticum, (barren stem).

and sacred to the solemnization of their moon-lit revels. It was a forest in miniature, and a forest of surpassing beauty. It is impossible to give any adequate idea of such a scene, either by language or illustration. In Wales it occurs at Hafod and near the Devil's Bridge, in deep shaded ravines, occasionally straggling into open and exposed places, but then partially divested of its characteristic elegance.

The figures of this plant are for the most part characteristic, although some of the older ones might have been more satisfactory. It is so distinct in its appearance and characters that one can hardly fail of recognizing it if drawn with even a moderate degree of accuracy. For the same reason all authors appear to agree in its name, and we thus escape the trouble of investigating a confused synonymy.

The roots of the Wood Equisetum are fewer in number and somewhat smaller than those of the species I have described: they are brown, tortuous, occasionally branched, and generally clothed with fibrillæ: the rhizoma is horizontally extended, branched and striated; in many places it is clothed with fibrillæ like those of the roots: it is throughout of a dark brown colour.

The stems are of two kinds, fertile and barren: both, when mature, are furnished with compound branches. The fertile stems rise from the ground perfectly naked, but most of them soon exhibit incipient branches just at the base of the upper sheaths; these quickly elongate into compound branches, forming several whorls, as represented on the next page. The number of whorls varies from two to eight; I have rarely met with the latter number, and never with more. Long after the catkin has decayed, these whorls of branches continue vigorous, and combine in giving a blunt or flat-topped appearance to the entire frond. They are of a dull, sickly, green colour, succulent and striated: the striæ are about twelve or fourteen in number, and the ridges between them are armed with minute siliceous points, but these are insufficient to communicate any roughness or harshness to the plant. The sheaths are very long and loose, terminating superiorly in three or four large conical lobes, containing on an average three striæ in each; the inferior portion of these sheaths is concolorous with the stem, the superior or apical portion is of a bright russet brown colour.

The catkin is elongate, somewhat pointed, and of a pale brown colour; it stands on a slender stalk, of rather more than its own length. The scales of the catkin are eighty and upwards in number. The catkin is ripe in April.

The barren stems make their appearance almost simultaneously with the fertile ones, but are more slender, and the sheaths are much smaller, although similarly formed and coloured. The whorls of branches are from ten to twenty in number, and the branches composing each whorl gradually decrease in number and length towards the apex, which is extremely slender, so much so, that unable to bear its own weight, it droops on one side, and is not readily to be distinguished from the

surrounding branches. The striæ are more distinct than in the fertile stem ; three or four of the ridges run into each of the lobes of the sheaths, and unite in its apex.

The branches are very slender, long, and drooping ; they are commonly divided into twelve or fourteen joints, of which the first and



Equisetum sylvaticum (fertile stem).

last are the shortest, and the second, third and fourth the longest, and emit from near their extremities other slender, long, and drooping branches. This second series of branches is of no uncommon occurrence in *Equisetum Telmateja* and *E. arvense*, but in these species it

may be regarded as casual, while in the present it is a constant character of the plant. The ultimate branches are generally triangular, each joint terminating in three long pointed teeth.



THE SHADY EQUISETUM.

EQUISETUM UMBROSUM, Willdenow.

Equisetum Drummondii, Hooker.

“FOR this addition to the [British] species of *Equisetum* we are indebted to Mr. Thomas Drummond, who found it on the banks of the Isla and Esk, in Forfarshire, extending up the valleys almost to the

sources of those rivers.”* Dr. Greville, who has obligingly supplied me with specimens, has since discovered it in woods near Forfar; and Dr. Balfour, to whom I am also indebted for specimens, has supplied me with the following list of Scotch localities:—“Woodcockdale wood, near Linlithgow; in woods at Castle Campbell, near Dollar; in a wood at Carloch Glen; head of Glen Isla; in Campsie Glen and Finglen, near Glasgow; in woods near Corra Lin, Lanarkshire; in woods near Dunfermline; and in woods at Auchindenny, near Edinburgh.”

This species has also been found in Ireland. Mr. Moore, of the Glasnevin Botanic Garden, says, “I suppose this species is not unfrequent in the county Antrim, on the sides of mountain glens where the geological formation is similar to that at Wolf Hill, *viz.* lias mixed with hardened chalk, but of this I am not exactly sure: the only place where I have collected specimens was a deep mountain glen near Cushendall, called Glendoon: I took it for a variety of *E. sylvaticum*, not being then acquainted with the species; but on comparing the specimens with those picked at Wolf Hill,” the residence of William Thompson, Esq., and the original Irish locality, “I found them identical, and it strikes me forcibly that I have passed it over in several other glens.”

I am not aware of its having yet been recorded as inhabiting England or Wales.

This species is described by Willdenow, Decandolle, Vaucher, Diedrich, and other authors, as *E. umbrosum*, and by Sir William Hooker and Mr. Babington as *E. Drummondii*. It is well figured by Vaucher† in all its states; the figure in ‘English Botany’‡ represents the fertile and barren stems correctly, but neither in the figure nor description do I observe any reference to the combination of fruit and branches on the same stem. Diedrich’s figure § has fruit and branches on one stem, but neither separate.

The roots and rhizoma precisely resemble those of the preceding species, the former being small, fibrous, sinuous, often divided, and black; the latter dark brown and striated, and extending horizontally.

The stems are of three kinds — *first*, bearing fructification only; *secondly*, bearing fructification and branches; and *thirdly*, bearing branches only. The fertile stems are four to six inches in height,

* Hooker in ‘English Botany’ Supp. 2777.

† Monographie des Prêles.

‡ Eng. Bot. Sup. 2777.

§ Dentshlands Kryptogamische-Gewaschse.

slightly striated when living, more evidently so when dried ; they are of a pale whitish-green colour : the sheaths are very large and loose, and nearly white, in some specimens almost of an ivory whiteness, with a brown ring at the base of the teeth, which are from fifteen to twenty in number, long, almost setiform, *very slightly* flexuous, pale brown, and furnished with dilated, membranous, almost transparent, whitish edges. The catkin is terminal, oval, and of a very pale brown colour ; at first it appears sessile, but when mature its footstalk is very obvious : the scales are forty or fifty in number ; in figure they are somewhat hexagonal, and have a conspicuous central depression, surrounded by six or seven nearly circular and slightly convex departments. The catkin is ripe in April.

When the stem bears both fructification and branches, a character overlooked by British botanists in their descriptions, but one of common though not constant occurrence, the branches are disposed in whorls four to six in number, the first being placed at the base of the uppermost sheath, and the others following in succession : the sheaths are smaller than in those stems which are fertile only, and larger than in the barren stems. I am indebted to Mr. Cameron, of the Birmingham Botanic Garden, for specimeus in this state, gathered while the catkin was still in perfection.

The barren differs from the exclusively fertile stem in having the sheaths much smaller and more distant ; the teeth also are shorter, fewer in number, and less pointed. The barren stem is usually divided into about twenty joints, of which the four or five lower ones are branchless, but each of the others is furnished with a whorl of branches varying in number from ten to sixteen in each whorl. These branches at first are somewhat recurved and drooping, as in *E. sylvaticum*, but they afterwards become spreading and slightly ascending ; they are simple, and composed of eight or ten joints, of which the basal one is the shortest, being a mere sheath ; the second is sinuous : they are usually triangular, and the loose sheath which accompanies each joint terminates in three obtuse teeth, which have the extreme tips brown. The ridges of the stem and branches are beset with minute flinty particles, which give the plant a rougher feel than the preceding.

Sir W. J. Hooker observes—"Its nearest affinity is doubtless with *E. arvense*, but it is abundantly distinct. Its colour is greener and less glaucous ; its stem rougher, with closely-set raised points ; its angles and branches much more numerous ; and the whole barren frond is singularly blunt in its outline or circumscription at the extremity, by which it may be at once known from *E. arvense*. The sheaths,

though paler at the base, have blacker and more prominent ribs upwards, and they are so close as almost to imbricate each other. The teeth are also more numerous, when they separate into their proper number.”* I quite agree with this profound botanist in considering the present species abundantly distinct from *E. arvense*; indeed the similarity to that plant does not appear to me particularly obvious: my idea of what would be termed “its affinities” will perhaps be sufficiently expressed by my placing it between *E. sylvaticum* and *E. Telmateja*.

EDWARD NEWMAN.

(To be continued.)

ART. CLXII. — *Notes on an old volume of Coloured Impressions of Plants.* By W. G. PERRY, Esq., F.B.S.E., &c.

A CURIOUS old collection of impressions of plants, slightly coloured, lately came into my possession. Although it is roughly executed, the character of the plants is well preserved. There are about five hundred and sixty species, contained in a foolscap folio volume of 370 pages. The names appended to the plants are evidently copied from the *second* edition of Ray's Synopsis; which, from the circumstance of its being published in 1696, and the *third* edition in 1724, shows that the collection was made in the early part of the last century.

It appears from the localities named that the book belonged to some one living in the neighbourhood of Knutsford, in Cheshire. If any Cheshire botanist can afford information respecting the original owner of the volume, it would afford me considerable gratification.

I flatter myself that the following localities, transcribed (without correction of errors) from this old Cheshire herbal, may not be unacceptable to some of your readers.

Acorus Calamus, L. “In the moat at *Holford hall* it grows plentifully, also at *Over Tabley*, both these places lying betwixt *Knutsford* and *Northwich* in Cheshire.”

Adoxa moschatellina, L. “In the Common Moor by *Knutsford* plentiful.”

Aquilegia vulgaris, L. “In agro secundo ultra domum *Anson House* dictum propè *Booth-wood* ab *Knutsfordiense* circiter unum milliare inveni.”

Asperula Cynanchica, L. “Juxta ambulacrum novum inter *Knutsford* et *New Tatton* provenit.”

Atriplex marina, L. “Propè *Warrington* observabit *Mr. Robert Chetham* et ad me attulit.”

Botrychium Lunaria, Sw. "In agris magnis ubi semiter est ducens ab *Knutsford* ad *Old Tatton*, inter the *Lane* et the *Mear*, non impossibile invenire erat Anno Dom. 1747."

Chenopodium olidum, Curt. "In horto Josepho Nixon seniori appertinente copiosissimè provenit, et adeo ei fere pestis est."

Chlora perfoliata, L. "Inter *Knutsford* et *New Tatton Hall* in novâ ambulacrâ non longè a posteriori inveni."

Chrysosplenium alternifolium, L. "By the brook at *Chelford*."

Convallaria multiflora, L. "In *Lower Peever* near *Pooldam*."

Cynoglossum officinale, L. "In via publica apud *Chelford* ut abiis ad *Capestone*."

Digitalis purpurea, floribus albis. "Hæc in agro inter *Knutsford* et *Tatton* inveni."

Erigeron acris, L. "In agris magnis sterilibus inter *New Tatton Hall* et *Knutsford* non longè a priori copiosè provenit."

Geranium columbinum, L. "In via inter *Knutsfordiensem* et *Novum Tattonium* copiosè inveni."

Geum rivale, L. "Juxta rivulo *Peover High* dicto copiosè inveni."

Hypericum Androsæmum, L. "Near *Middlew*(* * *), and also near *Macclesfield*."

Hypericum elodes, L. "Inter *Rud-heath* et *Lower Peover* in loco ubi aquæ stagnant, et in ericeto *Knutsfordiensis* juxta lacum *Cookstool-pit* dictum sed rarius."

Hypericum pulchrum, L. "Juxta *New Tatton Hall* copiosè inveni, et in *Bexton Lane* multisque aliis locis propè *Knutsford*."

Inula Helenium, L. "Juxta locum ubi *Old Booth Hall* stabat provenit."

Lysimachia vulgaris, L. "Circa *Tatton Mear* copiosè provenit, et alibi circa *Knutsford*."

Mentha arvensis, L. ? "In agro inter *Knutsford* et *Tatton* non longè a priori copiosè inveni."

Myrica Gale, L. "Circa *Knutsford Cestriensis* comitatu copiosè provenit."

Narthecium ossifragum, Huds. "Juxta scrobem inter *Old* et *New Tatton* inveni, et etiam super *Mear Heath* copiosè."

Ophioglossum vulgatum, L. "In horto of *Pet. Lee* inveni."

Osmunda regalis, L. "Juxta *Tatton Mear* propè *Knutsford* provenit."

Paris quadrifolia, L. "In agro primo vel 2o. ultra *Lower Peover Church* provenit sed rarior."

Petasites vulgaris, Desf. "About *Bollin* as you go from *Knutsford* to *Altringam*; below the old church at the side of *Booth-brook* plentifully."

Polygonum Bistorta, L. "Propè *Knutsford Cestriensis* comitatu variis in locis; ut in prato infra *Anson House* propè *Boothwood* copiosè inveni; inter *Tatton* et *Rosthern* in agro non longè a priori."

Radiola Millegrana, Sm. "Super *Rud-heath*, *Shaw-heath*, et *Knutsford*. Juxta lacum *Cookstool-pit* dictum copiosè inveni."

Saxifraga granulata, L. "In rivulo *Booth-brook* dicto."

Saxifraga Hirculus, L. "Found by my very good friend Dr. Kingstone on *Knutsford Moor*, and there shewed to Dr. Richardson by him; now growing in plenty."

Solidago Virgaurea, L. "Circa *New Tatton Hall* variis in locis observavi."

Spergula nodosa, L. "In the common moor by *Knutsford*."

Taraxacum officinale, *γ. lævigatum*, Bab. ? "In colle *Adamp*(***)ill dicto propè *Knutsford* inveni."

Tragopogon minor, Fries. "In prato magno in sinistram semitæ ut abiis ab *Toft Hall* ad *Lower Peover* non longè a priori provenit."

Triglochin maritimum, L. "Propè Warrington observabit et ad me attulit Mr. Robertus Chetham."

Vaccinium Oxycoccus, L. "In Cheshire vulgo *Cramberries*."

Vaccinium Vitis-Idæa, L. "Super *Mear Heath* propè *Knotsford* inveni copiosè."

Viola palustris, L. "In *Knotsfordiensis* palude com. inveni variis in locis."

W. G. PERRY.

Warwick, July 17, 1843.

ART. CLXIII. — *List of the Cryptogamic Plants of Oxfordshire.*

By PH. B. AYRES, Esq., M.D.

(Continued from page 664).

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| <i>Marchantia polymorpha</i> . Moist shady places, common, <i>Baxter</i> . | <i>Jungermannia platyphylla</i> . Old walls &c. common, <i>Baxter</i> ; trunks of trees, Stokenchurch woods, <i>Dr. Ayres</i> . |
| ————— <i>conica</i> . Shotover plantations, <i>Baxter</i> . | ————— <i>dilatata</i> . Trunks of trees, common. |
| <i>Jungermannia setacea</i> . Shotover hill, <i>Baxter</i> . | ————— <i>Tamarisci</i> . Headington quarry, <i>Baxter</i> . |
| ————— <i>asplenioides</i> . Shotover plantations, Bagley wood, <i>Baxter</i> ; Stokenchurch hill, <i>Dr. Ayres</i> . | ————— <i>pinguis</i> . Shotover hill, <i>Baxter</i> . |
| ————— <i>Sphagni</i> . Shotover hill, <i>Purton</i> . | ————— <i>multifida</i> . Shotover hill, <i>Baxter</i> . |
| ————— <i>crenulata</i> . North side of Shotover hill, <i>Baxter</i> . | ————— <i>Blasia</i> . North side of Shotover hill, <i>Baxter</i> . |
| ————— <i>bicuspidata</i> . Moist places, <i>Baxter</i> . | ————— <i>epiphylla</i> . Shotover hill, Bagley wood, <i>Baxter</i> ; Thame and Stokenchurch woods, <i>Dr. Ayres</i> . |
| ————— <i>connivens</i> . North side of Shotover hill, <i>Baxter</i> . | ————— <i>furcata</i> . Shotover hill, Bagley wood, <i>Baxter</i> . |
| ————— <i>incisa</i> . Shotover hill, <i>Purton</i> . | <i>Riccia crystallina</i> , β . <i>glauca</i> , Hook. Old gravel pits, St. Clement's, and bogs on Bullington green, rare, <i>Baxter</i> . |
| ————— <i>pusilla</i> . Bagley wood, rare, <i>Baxter</i> . | <i>Anthoceros punctatus</i> . North side of Shotover hill, <i>Baxter</i> . |
| ————— <i>nemorosa</i> . Shotover hill, <i>Purton</i> . | <i>Bæomyces roseus</i> . Bagley wood, <i>Baxter</i> . |
| ————— <i>albicans</i> . North side of Shotover hill, <i>Baxter</i> . | ————— <i>rufus</i> . Shotover hill, <i>Baxter</i> . |
| ————— <i>complanata</i> . Trees, very common. | <i>Calicium tympanellum</i> . Bagley wood &c. <i>Baxter</i> . |
| ————— <i>polyanthos</i> . Shotover hill, <i>Baxter</i> . | ————— <i>sphærocephalum</i> . Bagley wood &c., <i>Baxter</i> ; Thame, <i>Dr. Ayres</i> . |
| ————— <i>viticulosa</i> . Shotover hill, <i>Sibthorp</i> . | ————— <i>aciculare</i> (E. B. 2053). Bagley wood &c., <i>Baxter</i> . |
| ————— <i>bidentata</i> . Damp places, common. | ————— <i>debile</i> . Bagley wood &c., <i>Baxter</i> . |

- Calicium peronellum*. Near South Hinksey, *Baxter*.
- Arthonia astroidea* (E. B. 1847.) Smooth bark, common, *Baxter*.
- Opegrapha varia*. Bark of old trees, *Baxter*.
- *epipasta*, *β. microscopica*, Ach. On young oaks, *Baxter*.
- *rufescens*. On ash trees, Bagley wood, *Baxter*.
- *atra*. Trunks of trees, *Baxter*.
- *scripta*. Ditto.
- *dendritica*. Trunks and branches of trees, *Baxter*.
- *elegans*. On holly bark, Bagley wood, Shotover plantations, *Baxter*; Penleigh Hollies, *Dr. Ayres*.
- Verrucaria epidermidis*. On birch trees, Christ Church meadow, *Baxter*.
- ———— *β. analepta*, Ach. In the same locality, *Baxter*.
- *cinerea*. Smooth bark of trees, Bagley wood, Magdalen College copse, *Baxter*.
- *nitida*. Ash trees, Bagley wood, *Baxter*.
- *nigrescens*. Walls &c. common, *Baxter*.
- *rupestris*. On stones, Shotover hill, Bagley wood, *Baxter*.
- *biformis*. On old willows near Childswell, *Baxter*.
- Endocarpon miniatum*. Headington quarry, very rare, *Baxter*.
- Pertusaria communis*. Bark of trees, com.
- *fallax*. Bark of trees, *Baxter*.
- Thelotrema lepadinum*. On holly and oak, Bagley wood, *Baxter*; Penleigh Hollies, *Dr. Ayres*.
- Lepraria flava*. Bagley wood &c., *Baxter*.
- *viridis*. Common everywhere.
- *alba*. Trunks of trees, &c., *Dr. Ayres*.
- Spiloma gregarium*. Trunks of trees, common, *Baxter*.
- *murale*. Walls, Bullington green, *Baxter*.
- Variolaria faginea*. Trunks of trees &c. common.
- *discoidea*. Trunks of trees &c. common.
- Urceolaria scruposa*. Old walls and stones, *Baxter*.
- *calcareae*. Ditto.
- *cinerea*. Ditto.
- Lecidea atro-alba*. On stones &c., *Baxter*.
- *fusco-atra*. Ditto.
- *lapicida*. Stones, Shotover hill, *Baxter*.
- *confluens*. Ditto.
- *parasema*. Bark of trees, &c. common.
- *immersa*. Stones and rocks, *Ba*.
- *quernea*. Trunks of trees, *Ba*.
- *viridescens*. Moss, stones, &c. *Baxter*.
- *incana*. Trunks of trees, *Baxter*.
- *rupestris*. Walls and stones, Shotover hill, Cheney lane, *Baxter*.
- *vernalis*. Trunks of trees, *Baxter*.
- *icmadophila*. Shotover hill, *Ba*.
- *marmorea*. Ditto.
- *ulmicola*. Stones and trees near Shotover hill, very rare, *Baxter*; Rycot's park, *Dr. Ayres*.
- Lecanora atra*. Trees and tiles, *Baxter*.
- *subfusca*. Common on bark.
- *Parella*. Stokenchurch, on trees and stones, rare, *Baxter*.
- *Turneri*. Bagley wood, very rare, *Baxter*.
- *cerina*. Trees, rare, *Baxter*.
- *vitellina*. Trees and old rails, common, *Baxter*.
- *Hæmatomma*. Trees, Bagley wood, very rare, *Baxter*.
- *crenulata*. Walls and stones, Cheney lane, *Baxter*.
- Psora cæruleo-nigrescens*. Headington quarry, very rare, *Baxter*.
- *decipiens*. Ditto.
- Squamaria saxicola*. Walls & stones, *Ba*.
- *circinata*. Walls of Botanic Garden, bridge on the Botley road, *Baxter*.

- Squamaria candelaria*. On trees, *Baxter*.
 ——— *β. polycarpa*, Hook.
 Trees, Christ Church meadow, *Baxter*.
- Placodium canescens*. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.
- Parmelia virella*. Trunks of trees, common, *Baxter*.
 ——— *caperata*. Trunks of trees, not uncommon, *Dr. Ayres*.
 ——— *perlata*. Trunks and branches of trees, common; rare in fruit.
 ——— *olivacea*. On trees, &c., particularly on dead fences and posts, *Dr. Ayres*.
 ——— *parietina*. Everywhere.
 ——— *pityrea*. Trunks of trees, *Baxter*.
 ——— *saxatilis*. Trees, common, *Baxter*.
 ——— *pulverulenta*. Trees and shrubs, common.
 ——— *stellaris*. Trees and shrubs, rare, *Baxter*.
- Sticta pulmonaria*. Bagley wood, very rare, *Baxter*; Stokenchurch woods, not uncommon, *Dr. Ayres*.
- Collema nigrum*. On stones, Bullington green, *Baxter*.
 ——— *crispum*. On old walls, *Baxter*.
 ——— *fasciculare*. Walks of the Botanic Garden, Oxford, *Baxter*.
 ——— *palmatum*. On the ground, *Baxter*.
 ——— *granulatum*. Old walks, *Baxter*.
 ——— *nigrescens*. Trunks of old trees, *Baxter*; on willows, Thame, *Dr. Ayres*.
 ——— *lacerum*. On the ground among moss, *Baxter*.
- Solorina saccata*. Headington quarry, very rare, *Baxter*.
- Peltidea canina*. Heaths, woods, &c., *Baxter*.
 ——— *rufescens*. Heaths, woods, &c., *Baxter*.
- Nephroma resupinata*. Bagley wood, exceedingly rare, *Baxter*.
- Borrera tenella*. On almost every tree and shrub.
 ——— *ciliaris*. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.
- Evernia prunastri*. Trunks of trees, common.
- Ramalina fraxinea*. Trees, common.
 ——— *fastigiata*. Trees, common.
 ——— *farinacea*. Trees, common, but rare in fruit.
- Usnea plicata*, *β. hirta*, Ach. Trees and bushes in woods, Bagley wood, *Baxter*.
 ——— *barbata*, *β. articulata*, Ach. Bagley wood, very rare, *Baxter*.
- Cornicularia aculeata*. Shotover hill, *Baxter*.
- Cladonia furcata*. Shotover hill, Bagley wood, *Baxter*.
 ——— *rangiferina*. Shotover hill, Bagley wood, *Baxter*; Thame and Stokenchurch hills, *Dr. Ayres*.
 ——— *pungens*. Shotover hill, Bagley wood, *Baxter*.
- Scyphophorus alpicornis*. Heaths, rare, *Baxter*.
 ——— *pyxidatus*. Woods, &c., common.
 ——— *fimbriatus*. Heaths, &c., *Baxter*.
 ——— *radiatus*. Heaths & woods, *Baxter*.
 ——— *cocciferus*. Bagley wood, rare, *Baxter*; on a stump near the road from Stokenchurch to Cadmore End, rare, *Dr. Ayres*.

(To be continued).

B. AYRES.

ART. CLXIV.—*Notice of 'The Botany of the Malvern Hills, in the Counties of Worcester, Hereford, and Gloucester; with the Precise Stations of the Rarer Plants, and Introductory Observations on the General Features, Geology, and Natural History of the District.'* By EDWIN LEES, F.L.S., &c. &c. London: Tilt and Bogue, Fleet Street; and H. Lamb, Malvern. 1843.

MR. LEES has been so long and so well known as an ardent botanical explorer, as well as for his persevering efforts to popularize his favourite science, that to our readers any other introduction than the mere mention of his name would be quite superfluous. 'The Botany of the Malvern Hills,' as may be learned from its title, is strictly a local Flora of that rich district, and presents a record of the harvest yielded to the author's personal researches during a residence of several years in the neighbourhood. The following passage will explain the pains taken to render this as correct and complete as possible.

"Although the present work is scarcely more than a catalogue, it has taken the labour of years to survey and resurvey the ground minutely, and a multitude of studious hours have been spent in determining the less obvious and dubious plants. I think therefore, I may safely say, that there is no mistake in the Phanerogamous productions, most of which have again and again passed under my review, and I have excluded several species because evidently introduced, my object being to show the really indigenous Flora of the hills. It is true I have admitted a few agrarians, but these are perhaps as old as the introduction of corn, and therefore not undeserving attention. All the plants are to be understood as having been *gathered by myself*, except in the few instances where I rely upon the authority of friends who have sent me specimens.

"The Cryptogamic productions of the hills are so varied and curious, that I have taken especial note of them, and I much regret that the limits necessarily assigned to the present publication, have precluded my entering into the details respecting them I desired to do. I can hardly assert that in this intricate department I have been in every case correct in my designations, but I have consulted all the aids in my power. I have deposited specimens of all, or nearly all, the plants I gathered in the herbarium of the Botanical Society of London, so that botanists may easily refer to any of them, in case a doubt should arise to render it necessary."—*Preface*, p. vii.

The full reports of a paper by Mr. Lees* on the Botany of this district, which have already appeared in our pages, render it unnecessary for us to follow the author through his "Introductory Remarks;" we must, however, give the following extract.

"A good relieving artistical feature is given to the hills at all times by the fallen stones in the ravines, for though these are shapeless enough close at hand, and with

* Read before the Botanical Society of London: see *Phytol.* pp. 152, 206, & 268.

small pretensions to beauty, yet in the distance they assume a deep purple hue, which contrasts well with, and breaks the uniformity of the green turf. In the summer, the immense quantities of foxglove give a rich pink hue to the rocky slopes they cover, often mixed with the tall golden torches of the great mullein; while in other spots a purple mantle is created by the flowering of the wild thyme. As autumn slowly approaches, the gorsy patches sparkle most refulgently, though their golden splendour is somewhat chastened by the burnt umber of the withered brakes extending far and wide, and scorched by the blaze of August. In May, the hawthorns and mountain ashes wave on the sides of many of the ravines in milk-white purity, while in autumn their pendant coral berries give another phase of beauty to the inspiring and diversified scene."—p. 3.

We observe from the Enumeration given by Mr. Lees, that since his paper was read before the Botanical Society, he has added to the Malvern list 34 species of flowering plants and 112 species of Cryptogamia, thus raising the entire number from 1438 to 1584.

The plants are distributed in the three grand divisions of Exogens, Endogens and Acrogens; and under each of these primary divisions they are arranged according to the Linnæan system, of which Mr. Lees has always been the champion. We are also glad to see that the artificial system of the illustrious Swede is not without advocates among others who hold high rank in the science of Botany; and that there are still some left, who would regret to see that system consigned to unmerited oblivion, because it has not effected what it was never intended for, and consequently what we had no right to expect from it. Let it not be supposed that we are advocating the Linnæan system in consequence of being so prejudiced in its favour as to be blind to the merits and the excellences of other methods—this would be falling into the very error we are deprecating; we only ask for fair play—we claim for the Linnæan system a fair and unprejudiced examination, conducted in a spirit of candour, and with an especial reference to the end proposed by Linnæus in framing it, not forgetting that we are most undoubtedly indebted for the present advanced state of botanical knowledge, to the invention and operation of this system at a period when hardly any other means would have answered the same end. This examination we claim for the Linnæan system; for we cannot help suspecting that perhaps nine-tenths of those who so loudly and so clamorously decry it, are entirely ignorant both of the system itself, of its practical working, and of the debt of gratitude due to its illustrious author, from the present and all succeeding generations of botanists. A passage on this subject from the pen of Mr. Babington has already graced our pages, (*Phytol.* 642); and we think we could not select a fitter place than this, for giving an extract on

the same subject, from Professor Forbes's admirable 'Inaugural Lecture on Botany.'*

"The history of Botany, from the time it first assumed a scientific character to its palmy state in the present century, is more instructive than that of any of the other Natural-history sciences, though later in its development; for among the ancients, its most eminent votaries, Theophrastus and Dioscorides, were rather herborists than botanists, and originated no grand generalizations like those which gave the first impulse to zoological science, nursed by the giant mind and indefatigable research of Aristotle. But though Zoology started with the speed of the hare, Botany, like the slow tortoise, at length overtook it in the race, and the heavy volumes of Bauhin, Gerarde and Cæsalpinus, were all so many steps on the way. It first quickened its speed as a science of observation. Ardent naturalists went forth into foreign climes, and collected their vegetable products with indefatigable industry, noting carefully their living forms and hues. Others, tied down by the trammels of home-occupation, gathered the plants of their native countries and recorded their variations. Confused ideas of natural affinities clouded their early arrangements, but from the material so accumulated truer notions were in time generated. The good and kind-hearted, rather than the strong-minded, were the first votaries of the science. The gentleness of the pursuit was adapted to the kindliness of their natures. Their earnest unbiassed studies, originating in the admiration of the wonders and beauties of creation, and deep reverence for the great Origin of all things, were the corner-stones of botanical science, and on such a sound and firm foundation the superstructure could not fail to be nobly and speedily raised. In time the building was commenced; Ray, Tournefort, and a host of lovers of nature laid the first stones. Linnæus and Jussieu were the chosen architects.

"The great Swede, whose many-sided mind made all the science of his time contribute to his grand purpose of developing the system of Nature, saw at a glance, that though there was much material collected, more must be continually gathering, and that to make good and rapid use of what had been drawn together, machinery was wanting.

"*Instrumentis et auxiliis res perficietur: quibus opus est nihilominus ad intellectum quam ad animum.*†

"Linnæus invented the required instruments and aids. Whilst he taught that the grand aim of Botany should be the discovery of the true arrangement of plants in Nature, and boldly sketched his idea of what he conceived that arrangement would prove to be, -- in order that such great end might be the more speedily attained, he devised two ingenious artificial schemes, which, as he foresaw, led to the desired results. These were the binomial nomenclature, and the classification of plants according to the number or arrangement of their sexual organs.

"The first of these inventions, the simplicity of which is that characteristic of all the creations of genius, became the greatest means of furthering the progress of Natural History. It was endowing it with a universal language, in which all its followers might converse with perfect mutual understanding. The distinctions of nation

* An Inaugural Lecture on Botany, considered as a Science, and as a Branch of Medical Education. Read in King's College, London, May 8th, 1843. By Edward Forbes, F.L.S., F.B.S.E., &c. &c., Professor of Botany in King's College, London. London: John Van Voorst, 1, Paternoster Row; B. Fellowes, Ludgate St.

† Bacon, Nov. Org. lib. i. aph. 1.

and tongue were abolished by this admirable scheme, the universal and simultaneous adoption of which at once proclaimed its own excellence and that of its author.

"The second was, as it were, the making of an index to a great section of the book of Nature. Those who slightly think of the Linnæan system, as it is termed, forget in the present to look back fully and fairly on the past. They should remind themselves of the state in which Botany was when Linnæus undertook to make its treasures consultable. The understanding of things depends greatly on the perception of their order and relations. When that order and those relations require deep study ere we can comprehend them clearly, the man who gives us a clew, however insignificant it may be in its own nature, is not only conferring on us an invaluable benefit, but endowing the despised instrument with golden value. Such a clew did Linnæus give when he put forth the sexual system. The scientific systematist, surrounded by the stores of his herbarium, should not forget that those treasures were often amassed in the first instance by adventurous and earnest men, rendering good service by their hands and energy, as good in its humble way as that which he gives by his head and philosophy. It was not to be expected of such men that in the field they should occupy themselves with thoughts of arrangement or affinity; their part was to observe and select, and the guide to their observation and selection was no other than the Linnæan system. In the scientific hive as in the apiary, there must be working-bees and nenters as well as queens and drones: it is necessary for the economy of the commonwealth. An easy means of acquiring and arranging information is a great help to the workman of science, and no department has gained more thereby than Botany, which, through the facilities afforded by the artificial method devised by Linnæus, has had its facts amassed in enormous quantity for the use of its more philosophic votaries, and owes its present advanced state in a great measure to such humble means.

"The clew to the labyrinth, then, having served such noble purpose, becomes a consecrated object, and should rather be hung up in the temple than thrown aside with ignominy. The traveller returning from his adventurous and perillous journey of discovery, hangs up his knapsack with affection on the walls of his study. But travellers must return to the fields, if more is to be done; and so must botanists, and each must have recourse again and again to those helps which aided them so well in their earliest journeys.

"In saying these few words in favour of the Linnæan system, I know I am pleading an unpopular cause: but I speak out freely, partly because I mean to proceed on a different basis in conducting the botanical studies here, and partly because, after the once over-enthusiastic attachment to the Linnæan method which prevailed so long in Britain, and which was carried so far as to impede the progress of Botany, a reaction has taken place which threatens to blind the eyes of the younger botanists to the merits of a device which was, and ever will be, a most valuable auxiliary of the science."

—p. 16.

We have with great pleasure followed the learned Professor through the above able and candid defence of the Linnæan system. This defence is doubly valuable, both as emanating from so high a quarter and as being perfectly disinterested on the part of the Professor; from these circumstances we consider the defence to derive additional importance, and to be entitled to additional respect and consideration. The time is past when the mere facility of finding out the name of a

plant and referring it to its proper station in a system is to be looked upon as the sole end and aim of botanical research; but why should we not use the easiest means of acquiring the true end? The votaries of the so-called natural method are confessedly obliged to have recourse to artificial schemes, in order to determine the names and stations of the comparatively small number of species indigenous to Britain. We would by no means be understood to wish that Botany should be taught exclusively by the Linnæan method; but so long as artificial systems are required, and it seems that in Britain at least we are not yet able to do without them, we would ask, why not avail ourselves of that which is unquestionably the best of all hitherto devised? The object of all artificial systems of Botany we apprehend to be the same, namely, the enabling the student to ascertain with ease and certainty the name of any plant he may meet with; this step gained, the student is in possession of a clew which will enable him to follow out the subject in its remotest bearings. The Linnæan system, used, as its author intended it should be used, as "an index to a great section of the book of Nature," appears to us superior in the grand requisites of applicability and certainty to any other artificial scheme with which we are acquainted; and thus used, the Linnæan system, as Professor Forbes has well said, will ever be "a most useful auxiliary to the science." After thus stating the true aim and end of the Linnæan system, the Professor continues.—

"The aim of Jussieu was of a different kind. Gifted with a highly philosophic mind, he concentrated its powers mainly on one subject. His devotion produced great results. He placed the study of the natural affinities of plants on a practical basis, and originated those views afterwards more fully developed by DeCandolle and other distinguished men. The spirit of Jussieu has presided over the greatest botanical works down to the present day, and his influence is as powerful now as when he first expounded to his delighted pupils just views of the vegetable kingdom.

"The genius and doctrines of Linnæus and Jussieu having placed Botany on a sure scientific basis, hosts of labourers crowded to the field, and the enthusiastic pupils and admirers of those great men went forth observing and collecting over every discovered land. The facts they added demanded new research and modified arrangements. Still the great stage of *classification* had been attained, and the science was to enter on the third æra of its existence, that of *philosophical investigation*. In that æra we now live. Its characters are—the observation of facts, not so much for their own sakes as for the illustrations they afford of the laws of the science; careful experimental inquiries into the phenomena of vegetation, not undertaken as isolated researches, but with a view to their comparison with vital phenomena throughout animated nature; minute anatomical investigation under the microscope, not conducted merely to display new forms of structure, but in the hope of solving, if possible, the problem of the ultimate structure of tissues; the construction of local floras and publication of local catalogues, not with the limited view of assisting the inhabitants of a province to a knowledge of

their vegetable compatriots, or with the pardonable vanity of showing how many fine plants grow in the author's country, but in order that the great laws of the distribution of organized beings on the surface of our globe may be discovered and developed; and the construction of systematic arrangements, not framed solely for the ascertaining of the natural alliances of families, important as such object is, but also with the view of discovering the great laws which doubtless regulate those alliances equally in the animal and vegetable kingdoms."—p. 19.

It has always appeared to us that those who are the loudest in their outcries against the Linnæan system, must be unacquainted with, or to say the least, forgetful of, what Professor Forbes has not omitted to notice, namely, the well-established fact, that while Linnæus was endeavouring to perfect his artificial system, as a means whereby a chaotic mass of materials might be reduced to order, he was no less assiduously labouring to discover the true laws of a natural arrangement, and this, he ever insisted, ought to be the grand aim of the researches of every botanist. Thus, in his '*Philosophia Botanica*,' after enumerating the different systems and methods of his predecessors and contemporaries, as well as his own sexual system, and another method founded on the calyx, he observes:—"The fragments of a natural method are studiously to be sought for. This should be the grand desideratum with every botanist:" the necessity for endeavouring to attain this desideratum being enforced in other parts of the same work. He then proposes what he modestly calls the *fragments* of a natural method: these exhibit all the genera known to the author arranged in sixty-eight orders. There is, moreover, abundant evidence on record to prove that Linnæus himself was the *founder* of that system which has since been so much improved by the eminent botanists who have turned their attention to this branch of the science: such was the expressed opinion of the late Sir Joseph Banks; and Bernard de Jussieu, with all the candour of a great mind, says, in a letter to Linnæus,—"You may now devote yourself entirely to the service of Flora, and lay open more completely the path you have pointed out, so as at length to bring to perfection a natural method of classification, which is what all lovers of Botany wish and expect."

We find that we have been strangely led away from the immediate subject of the present notice by this discussion; but we trust the digression needs no apology. In conclusion, we can honestly say that we heartily recommend Mr. Lees's very neat little book, to all who feel an interest in the subject of the geographical distribution of British plants, and more especially to the botanical visitants of Malvern.

ART. CLXV. — *Varieties.*

350. *Note on Linaria Cymbalaria.* On the 28th of May, 1841, my father called my attention to a curious circumstance respecting the ivy-leaved toad-flax, or Aaron's beard (*Linaria Cymbalaria*). — Having a plant in his study, dependant from a suspended flower-pot, he observed that all the flowers invariably turned towards the window, which faced the south. Immediately after the blossoms had fallen off, and the seeds began to perfect, the stems on which they were placed gradually turned round away from the light, to the back of the plant. Conjecturing the cause of this latter motion, he supposes they revert for the purpose of depositing the seeds. In order to understand this, we must recollect that the toad-flax is procumbent and pendulous, growing on old walls in its native state. Consequently it is necessary that the inflorescence, which uniformly projects from the wall, should after the fall of the corolla turn towards the back of the plant, in order to deposit the seeds on the wall, otherwise they would fall to the ground and perish. — *Robert Dick Duncan ; Vale of Almond, Mid Calder, Edinburghshire, June 10, 1843.*

[The experience of our readers will suggest many other examples of this phenomenon : the Cyclamen offers a curious and interesting instance ; and the common pimpernel, being a trailing plant, is analogous to the case above mentioned. In Lindley's 'Introduction to Botany' in the chapter on "The Directions taken by the Organs of Plants," is the following passage on this subject : — "The ovaria often take a different direction after the fall of the corolla than they had before. Thus, during flowering, the ovary of *Digitalis purpurea* was nodding like the flower, the direction of which it was compelled to follow. Immediately after the fall of the corolla, it turns upwards towards the light, to which it is attracted by its green colour. A contrary phenomenon is presented by the ovary of *Convolvulus arvensis*. The flower is turned towards the sky : as soon as it has fallen, the ovary takes a direction towards the earth, bending down the peduncle. This cannot be due to the weight of the ovary, which is much lighter than its peduncle, but must depend upon its disposition to avoid the light, on account of its pallid hue, which is nearly the same as that of the root. In *Convolvulus sepium*, on the contrary, in which the ovary is equally pale, its erect position is maintained, and the influence of *decoloration* counteracted by the greater affinity to the light of two large green bractæ in which it is enveloped."—p. 286.—*Ed.*]

351. *Note on Cystopteris alpina at Low Layton.* Having heard, about four or five years ago, that this interesting fern — all trace of which had been long obliterated by the reparation of the ancient wall on which it once grew luxuriant and plentiful — had again made its appearance in the original station, and that a specimen then recently obtained from thence had been exhibited at one of the Linnean meetings ; I was induced to extend my wanderings as far as Low Layton

for the express purpose of endeavouring to obtain a sight of a plant, the identity of which had given rise to much difference of opinion among several of our most distinguished botanists, although I was entirely ignorant of the precise locality said to afford the little rarity. Numerous were my enquiries, and long and wearying my researches about "old walls;" and after hours of exertion I well nigh feared that my excursion would prove fruitless, when I was fortunately directed to an individual in the neighbourhood who knew the station well, and had recollection of the visits of metropolitan botanists in search of the plant, but who himself doubted its existence there at that time. However, on my proceeding thither by his direction, judge my great delight at beholding, without much trouble in searching for them, from thirty to forty specimens, some beautifully fruited, and all in a thriving state. Several others, I dare say, might have been detected on a more minute inspection. I contented myself with bringing away three or four plants only, one of which I have preserved in my herbarium, leaving the rest to repay the pains-taking of such others of the lovers of our ferns as might chance to bend their steps that way. Since the date above alluded to, I learn from a friend that the wall has again been repaired and beautified, and the plant apparently "destroyed" a second time; so that it may not perhaps just now be met with, although so well established does it seem to have been in that famed spot, and such the known tenacity of its existence, that we may well suppose it far from impossible that some future patient investigator may yet have the pleasure of recording its re-appearance at a remote day. My recollection of the circumstance of finding this fern has been refreshed by reading Mr. Newman's charming little note of his visit to Ham-bridge, in search of *Asplenium viride*, as recorded in the August number, (Phytol. 671). That gentleman, however, does not tell us he supposes that that plant, being alien to the entire Worcestershire district, is "probably only an escape from a garden," although in his elegant 'History of British Ferns' he mentions the like as his belief respecting the somewhat parallel case of the *Cystopteris* at Layton. Are the plants published under the names of *C. regia* and *C. alpina* in the Lancashire fern-list (Phytol. 477) identical with the Layton plant? — *Edward Edwards; Bexley Heath, Kent, August 4, 1843.*

352. *Cotyledon lutea*. Among several miscellaneous matters of botanical prints and tracts picked up at a sale some years ago, some part at least of which, I was told, had formerly been in the possession of the late Dr. Dyer, there occurred an odd number of the original

edition of 'English Botany,' which contained the plate of *Cotyledon lutea*, and at the foot of Sowerby's figure was written a memorandum in ink,—"*Specimens on Ashted Park-wall near Epsom—indig: vide Hist. Epsom Appendix. 1824.*" As this species is still retained in our catalogues, although very dubious habitats only are given for it, and, as far as I am aware, the one just named is not among them, I should feel gratified, and so, doubtless, would other readers of 'The Phytologist,' to hear tidings of the plant or of the Epsom locality. Possibly some one of the readers of that useful journal may know the spot, or possess and could refer to the 'History of Epsom' alluded to, a work with which I am unacquainted.—*Id.*

[We also should feel great pleasure in learning the history of the specimens of *Cotyledon lutea* "on Ashted Park wall near Epsom," though we fear there is no chance of establishing their claim to be "indigenous" there. Our esteemed correspondent, Mr. G. S. Gibson, has kindly favoured us with some extracts from a note received by him from a friend residing in Somersetshire, which, although not amounting to positive evidence that the plant is really to be found in that county, yet carry with them such an air of probability, that we feel great pleasure in laying them before our readers. Mr. Gibson has not seen the specimen alluded to; but he informs us that the locality is "Blackdown Hill, three miles from Wellington, Somerset:" his correspondent says,—"The specimen that I have was gathered about six years since, and so completely answers the description and plate given of it in Smith and Sowerby's Botany, that I think we cannot be mistaken; it was a bright yellow, with a spike of flowers, but as they were not expanded, it is imperfect. At the time it was gathered there appeared to be only one root; since that time we have searched for it, but have always been unsuccessful." This information is exceedingly interesting, since it points out a particular locality, to which especial attention should be paid by those who have the opportunity. Our information respecting the stations of this plant has hitherto been very vague, amounting to no more than that it was "Seen by Mr. Hudson, in the garden of a Mr. Clement, who received it from Somersetshire. Roots, given by Mr. Hudson to the Chelsea garden, have long flourished there, and from thence the figure in *Eng. Bot.* was drawn."* In Turner and Dillwyn's 'Botanist's Guide' it is said to grow on "walls and rocks in the West Riding" of Yorkshire, on the authority of Mr. Tofield; and in a foot-note Mr. Turner says,—"Mr. Fairbairn informed me that the stock of this plant, now in the Chelsea garden, originated from a Yorkshire root introduced by Mr. Hudson."† The above seems to be the sum of all that is known about this beautiful plant, as a British species; we should be truly glad to have its claims to that rank fully established.—*Ed.*]

353. *Pæonia corallina*. Since my enquiry respecting the existence of this species (Phytol. 580), through the condescension of a kind botanical friend I have been favored with an exquisitely beautiful and perfect specimen, obtained in May last from the Steep Holmes station, where I understand the plant, although become extremely scarce,

* English Flora, ii. 315.

† Botanist's Guide, ii. 692.

may possibly remain till future seasons, from the great difficulty of attaining it on the *perpendicular* cliffs, where it now grows. With regard to the Gravesend locality (Phytol. 683), I have several times endeavoured to obtain information of Betsam country-folk — no bad authorities in the case of a plant so well known as the pæony is to most persons; but my enquiries have not elicited that it has ever been seen within memory in a wild state anywhere in that neighbourhood. Of course, at this distance of time it is impossible to trace old Gerarde's "conny-berry," or the grounds of farmer Bradley.—*Id.*

354. *Note on drying Plants for the herbarium.* Much of the discussion on the subject of immersing plants in hot water previously to drying them for the herbarium, appears to have arisen from the individuals who have practised it considering the principle intended for *general application*. Now four fifths of our native plants require nothing but care in changing the papers, to preserve both colour and form in the greatest perfection. And of these I have no doubt that the greatest part would be *injured*, rather than improved, by the hot water; *Galeobdolon luteum* for instance, (Phytol. 673): consequently they do not afford a fair test of the principle. It is with plants which defy the ordinary methods, such for example as several of the *Rhinanthaceæ*, that we must have recourse to something more than simply changing the papers; and the experience of myself and friends shows hot water to be that resource. Mr. Gibson's plan of applying artificial heat (Phytol. l. c.) is by far the best and speediest method yet made known for drying the generality of plants; but it will not do for certain species, especially succulent ones, any more than hot water is required for *Asperula* or *Barbarea*, which indeed suffer from its application. Experiment alone will indicate for what particular species the hot bath is necessary. In reference the remark on p. 677, I must beg to enquire what is the use of selecting the finest and most perfect specimens for drying, if we are subsequently to dissect and mutilate them, and so have all our work to do over again? Even if our intention in forming a herbarium were future dissection of the specimens, the hot water cure cannot interfere with their utility for that purpose, because with ordinary care the parts of fructification need not be wetted. In my own herbarium I preserve a perfect specimen to show the plant, and an inferior one, or some fragments, to cut up when I have occasion. *Ophrys apifera*, which is the only *Orchis* I have yet dried on the hot water principle, is perfect both in form and colour: the flowers were not immersed. *Lathræa squamaria* has de-

fied every method I have had the opportunity of trying. — *Leo. H. Grindon; Manchester, August 7, 1843.*

355. *Note on Epimedium alpinum.* On the 19th of June last I visited Bingley, for the purpose of making myself better acquainted with the Carices &c. which grow in that neighbourhood, and more particularly *Epimedium alpinum*, as in Mr. Watson's New Guide (at p. 275) there is the following reference to that plant:—" *Epimedium alpinum.* Bingley woods, B. G. (is it still there?)" In reply to this question I would say that the plant, to my knowledge, has been in the neighbourhood of Bingley for more than twenty years, as I gathered specimens in that locality on the 7th of May, 1821, and again in 1834. In the fifth edition of Withering's 'Systematic Arrangement' (ii. 258), I find the following reference to Bingley woods:—"Mr. Hailstone, in Whitaker's Craven, observes that it certainly is not now to be found in Bingley woods." There is also something said on this plant in the 'Yorkshire Flora,' and in the *second* part of Watson's Guide, but as I have not these books at hand, and do not now recollect what is said, I will refer the reader to look for himself. How the *Epimedium* may have got into the neighbourhood of Bingley, I know not; but certain it is that that plant *is and has been in that neighbourhood for a great length of time*, and not confined to one particular place, since I have found it on both sides of the river. On the 19th of June last, Mr. Ainley showed me the plant growing on the left hand side of the river going from Bingley towards Leeds. When I gathered the plant in 1821 and 1834, I got it on the other side of the river, and much further from the town. I do not here make any attempt to prove that *Epimedium alpinum* is a true British plant, but merely to say, in answer to Mr. Watson's question, that the plant is still to be found in the neighbourhood of Bingley. — *Samuel Gibson; Hebden Bridge, August 6, 1843.*

356. *Note on an apparently undescribed British Carex.* Perhaps you will allow me to trespass a little more on your pages, as I have a few remarks to offer on a *Carex*, which appears not to be described in any of our works on British plants. The plant I wish to notice is one that is mentioned by Mr. Lees, at p. 48 of his 'Botany of the Malvern Hills.' It is now some time since Mr. Lees sent me a specimen of his Malvern plant, and wished to have my opinion as to its specific identity. The specimen sent at that time was in a very young state, and I imagined it to be the same as my *Carex ovalis*, var. *bracteata*; however, Mr. Lees has sent me specimens of more complete growth, which prove it to be very different from that plant. A few days ago

I showed the specimens to Mr. Babington, who told me that he believed the plant was described by continental writers, and he thought he had seen continental specimens. To this plant I have given the provisional name of *Carex Malvernensis*, which will serve until we can make out whether the plant has been previously named or not. It differs from *C. ovalis* in having a leafy bractea, which is much longer than the spike; it also differs from that species in its fruit being somewhat different in form, and only half the size of that of *ovalis*.—*Id.*

357. *Note on Ranunculus hirsutus.* This appears to be a plant far from plentifully distributed. When diligently sought for on the authority of various local lists, it has uniformly eluded me; in fact, for some years I have ceased to search for it, and stumbled upon it at length only by accident, while driving the other day in the lanes between Thorpe-le-Soken and Great Holland, in the county of Essex, where it forms gay patches wherever the turf is pared away. In the salt marshes in the same neighbourhood the most conspicuous plants are *Statice Armeria* and *Limonium*, *Plantago maritima*, *Scirpus maritimus*, *Triglochin maritimum*, *Arenaria marina*, *Atriplex portulacoides*. The way-side plants next worth mentioning, after *Ranunculus hirsutus*, are *Onopordon Acanthium*, *Inula pulicaria* (a far less common plant than *I. dysenterica*), *Veronica polita* and *Erysimum cheiranthoides*.—*W. L. Beynon; Down Hall, near Harlow, August 7, 1843.*

358. *Note on Epilobium roseum.* This plant is, I fancy, frequently overlooked by herborisers. My acquaintance with it commenced, I suspect, many years ago, by the side of a brook running into the Trent, near Barton-under-Needwood, in Staffordshire, though it was not till yesterday that I satisfactorily determined the species, upon again noticing the same plant growing with its congeners, *E. hirsutum* and *E. parviflorum*, along the banks of a stream called the Pincey, not far from its junction with the Stort, near Harlow, Essex. It may be detected at some distance, by the thin and delicate character of the leaves, the reddish hue of the lower part of the stem, and, above all, by the rosy, drooping, half-closed flowers. As plants of the same neighbourhood I may specify *Bupleurum rotundifolium*, *Trifolium ochroleucum*, *Campanula glomerata*, *Linaria minor*, *spurium* and *Elatine*, *Galeopsis Ladanum*, *Chlora perfoliata*, *Gentiana Amarella*, *Mentha Pulegium*, *Eunonymus europæus*, *Cichorium Intybus* and *Verbena officinalis*.—*Id.*

359. *Note on a new locality for Isnardia palustris, and on the small White Water-lily.* Having occasion to pass through the New Forest last week, and bearing in mind Mr. Pamplin's "Enquiry respecting '*Nymphæa alba minor*,'" in the March No. (*Phytol.* 525), I

made a point of visiting the stream and pools at the entrance of the village of Brockenhurst from Lyndhurst. I found the *Nymphæa alba* there, in abundance, and in full flower, but not varying more than usual in size. I had, however, the satisfaction of seeing in one of the pools, and in a neighbouring bog, the rare *Isnardia palustris*, of which this is, I believe, the third known British station. I may add that I gathered a very small white water-lily, in the year 1810, in shallow water on the margin of Loch Ard near Aberfoil, in which, the size excepted, I could find no difference from the common *N. alba*. — *W. Borrer; Henfield, August 12, 1843.*

360. *Note on the Cerastium latifolium of the Linnean herbarium.* In 'The Phytologist' for the present month (Phytol. 677), Mr. Edmonston disputes the correctness of an idea expressed by myself in a former number (Id. 586), to the effect that the *Cerastium latifolium* of Smith and British botanists in general, is truly the species so named by Linnæus; and further, that the Shetland plant described and figured by Mr. E. (Id. 495) is only another form of the same species. My own copy of 'The Phytologist,' up to May last, being at present in the hands of a binder, I am unable to refer back to the exact words of either Mr. Edmonston or myself; but can state that the accuracy of my own opinion, as formerly expressed, was afterwards fully confirmed by a reference to the Linnæan herbarium. There are three specimens in that herbarium, labelled "*latifolium*" in the handwriting of Linnæus. One of these corresponds tolerably well with the figure and description of the Shetland plant, except that the leaves are elliptic varying to ovate (not orbicular, as their length is double their breadth), and that the peduncles vary from equal with the flower to twice or three times the length of the latter. The other two specimens depart more widely from Mr. Edmonston's Shetland plant, and are quite as well represented by that gentleman's figures of *E. alpinum*, as by his figure of the Shetland *E. latifolium*. These two specimens being single flowering branches, without root or capsule, do not show all the characters of the species, but they correspond very closely with my flowering specimens from Perth and Sutherland. Their leaves vary from lanceolate acute to elliptic obtuse. Their bracts are alike in size and form, being smaller and more acute than the leaves; but on one of the specimens the bracts have a broad membranous margin, while on the other specimen they are herbaceous. The peduncles are rather longer than the solitary flowers. In all three specimens there is a well-defined membranous margin to the sepals; but this margin is not broader in these specimens of *C. latifolium*, than is the mem-

branous margin of the sepals in the single specimen of *C. alpinum* which is preserved in the same herbarium, and also labelled in the handwriting of Linnæus. The specimen of *C. alpinum* appears quite glabrous to the naked eye, and has obtuse leaves, like some of my Highland and cultivated specimens of the same species. Mr. Edmonston is doubtless correct in supposing his Shetland plant to be the *C. latifolium* of Linnæus, but these specimens in the Linnæan herbarium show that he is quite wrong in the specific characters by which he proposes to distinguish *C. alpinum* and *C. latifolium*. Probably the best character will be found in the seeds; those of *C. latifolium* (from Perthshire and Sutherland) being muricate, while those of *C. alpinum* (from Perthshire) are simply rugose. *C. alpinum* has larger and paler seeds, with an oblique orifice to its cylindrical capsule. In *C. latifolium*, the ovate capsule has the orifice scarcely or not at all oblique; though I cannot assert that these characters (drawn from the form and orifice of the capsule) are constant in the living plants, and they are often lost in the process of drying the specimens. I write of the Linnæan specimens as they appeared to the unassisted eye, not having any magnifier at hand when inspecting them.—*Hewett C. Watson; Thames Ditton, August 12, 1843.*

361. *New locality for Jungermannia Turneri*, Hook. In May, 1842, while walking through Tilgate forest, Sussex, I was fortunate enough to gather *Jungermannia Turneri*, a species I believe found by no one previously, except by the original discoverer, the late Miss Hutchins, in Ireland.—*Edward Jenner; Lewes, August 21, 1843.*

362. *Surrey localities for Schistostega pennata*. In June, when at Farnham, Surrey, I had the good fortune to discover *Schistostega pennata*, in great abundance, in Mother Ludland's cave, in all its varied and beautiful colours. St. Catherine's Hill, Guildford, being of similar sandstone, I was induced to search for it there, and found it in the sand-martins' holes.—*Id.*

363. *Erratum at p. 592.* Will you have the kindness to substitute the name of "Mr. Edward Jenner, of Lewes," for that of "Dr. Edward Jenner," in the Report of the Microscopical Society, (Phytol. 592). I shall, perhaps, at some future time, explain my views as to the nature of *Gomphonema*, *Achnanthes*, *Cocconema*, &c., which I do not consider to be Zoophytes.—*Id.*

364. *A word on Lastræa spinulosa*. Mr. Babington, in his excellent 'Manual,' has the following remarks on the plant usually known by this name.—

"*β. linearis*; frond mostly erect scarcely more than twice pinnate often very narrow

its sides nearly *parallel* in the lower part, lobes nearly flat with a *wavy midrib*, *indusium* 'entire.' *A. spinulosum* (Sm.). Small forms of this are often called *A. dumetorum*. I am in doubt if these plants are distinct species or varieties, but require a more perfect knowledge of them than I now possess. It appears that the *A. spinulosum* (Willd.) is a different plant, having 'glandulose bristles' on its indusium; if therefore Smith's plant proves distinct it will require a new name, and I would suggest *Smithii* as highly appropriate."—p. 386.

It appears to me that this view of the case is untenable, and I am the more inclined to dissent from it, because Mr. Babington has, I fear, been misled by some previously published observations of mine. — Smith emphatically states that the frond of his *Aspidium spinulosum* is "triangular or deltoid;" it is thus figured in the 'English Botany,' (t. 1460); the authentic specimen in his herbarium has this form; and all the evidence arising from Smith's description, figure and specimen, convince me that a small frond of the plant we call *Lastrea dilatata*, was and is Smith's *Aspidium spinulosum*. Mr. Babington's *linearis* appears to me to be the *Polypodium spinulosum* of Withering, found in "bogs on Birmingham heath;" it is also the plant described by myself as "the *linear* type, erect, rigid, pale sickly green, lateral margins of the frond nearly linear, &c." This term (*linear*), apparently adopted by Mr. Babington (*linearis*), is I believe the only distinguishing epithet the plant ever received. Sir J. E. Smith's part in the transaction appears to have been *to misunderstand Withering*, and that, surely, does not entitle him to the proposed honour. Had Mr. Babington proposed to call the plant *Lastrea Witheringii*, as a compliment to the original describer, no objection could have been raised; but in the present instance the proposed honour appears to me to be misapplied, and I hope Mr. Babington will allow the plant, if raised to the rank of a species, to bear the name of *linearis*, as it certainly has no claim to that of *Smithii*, or even to that of *spinulosa*.—*Edward Newman; Hanover Street, Peckham, August 24, 1843.*

ART. CLXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 4, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair.

Read, "Observations on a variety of *Rosa sarmentacea*, Woods (found near Bridge-water by Mr. Clarke)," by Edwin Lees, Esq., F.L.S.

Mr. L. had known this variety for some years; and though there is considerable difference in the more or less deeply cut serratures of the foliage, he had always found the calyx to be fringed with stalked glands, as well as the flower-stalks. The tube is generally but sparingly so, or even naked. It is abundantly covered with glands in this variety. In some manuscript observations on the species, made in 1836, Mr. L.

had recorded,—“Calyx pinnate, rather densely covered with glandular bristles, which united to a purplish bloom on the segments, as well as on the tube, gives the rose a peculiar and very elegant appearance.” The petioles are always more or less glandular, without prickles, differing in this respect materially from *Rosa canina*, as well as in the particulars mentioned above. There is another point, too, which deserves attention. Mr. L. had often observed that the young foliage of this species has a faint but very perceptible cowslip-like scent, but he had never observed this in the leaves of *R. canina*. Mr. L. contended that *Rosa scabriuscula* was a good species, though it must be observed that the calyx-tube varies in being more or less covered with stalked glands, and that therefore Smith is wrong, in the ‘English Flora,’ in saying with regard to it, “quite smooth and naked.”

The character of this plant, as differing from *Rosa canina*, consists in the glandulosity of the pinnate calyx and of the peduncle, and in the petioles being slightly glandular, without prickles, or with very weak ones.

This rose, as far as Mr. Lees had observed, is not very abundantly distributed, being somewhat local, and plentiful only in particular spots.

Read, “Notice of the Mosses found in the neighbourhood of Bristol,” by Mr. G. H. K. Thwaites, M.E.S. The author enumerated 133 species as indigenous to that locality, several of which appear to be new to the British Flora. Amongst those most interesting to the British muscologist, may be mentioned the following.

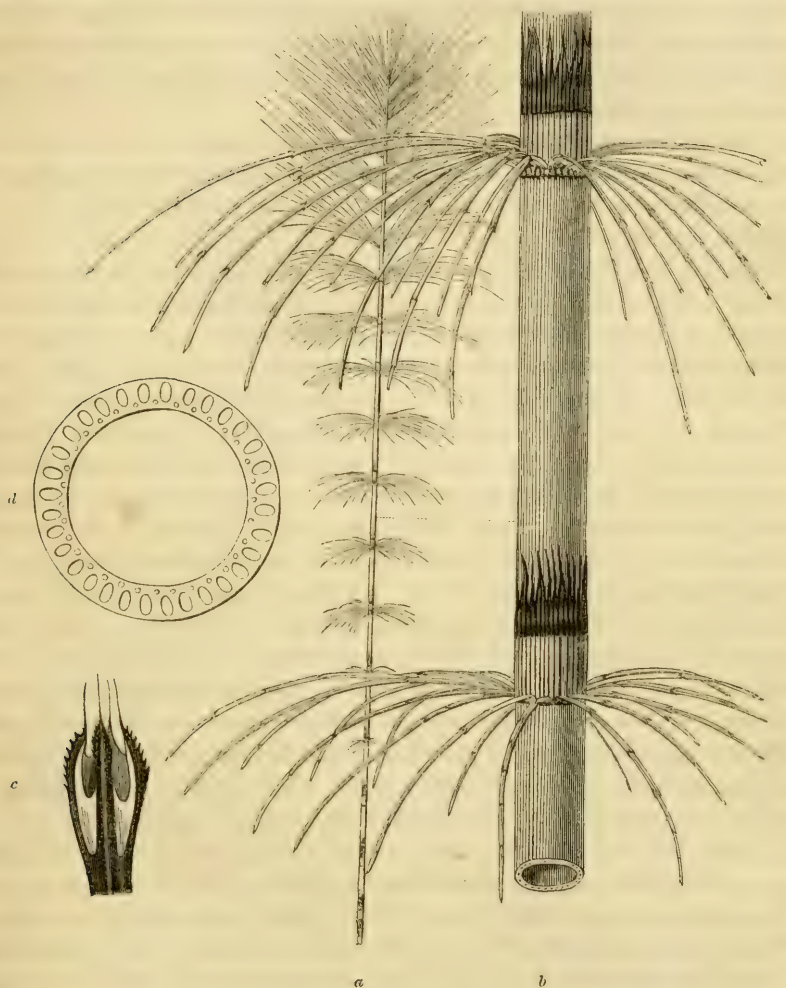
Didymodon Bruntoni	Funaria Muhlenbergii,	Hypnum crassinervium
rigidulus	[<i>β. patula</i>	strigosum
crispulus, <i>Wils. M.S.</i>	Bryum albicans	circinatum
brachydontus, <i>do.</i>	atropurpureum	cæspitosum
flexicaule	cernuum	Hookeria lucens
Trichostomum fasciculare	rostratum	Tetraphis pellucida
polyphyllum	Bartramia pomiformis	Encalypta streptocarpa
Barbula rigida	Leucodon sciuroides	Weissia Starkeana
convoluta	Hypnum riparium	Grimmia orbicularis
lævipala	murale	Gynostomum viridissimum
cylindrica, <i>Wils. M.S.</i>	piliferum	fasciculare
latifolia	salebrosus	Orthotrichum Rogeri

The President drew the attention of the Society to an abnormal form of *Ophrys apifera*, which had been sent to him by a lady, from Dorking. The two lower flowers of the spike had two distinct united columns, the upper normal one being rather the longest, and overlapping the other; the upper flowers had three columns united into a singular triangular mass; the upper petals of each of the flowers were rather reduced; the lips of the two lower flowers were small, and retained in part the usual character of the flower, but the lip of the upper flower was lilac, and exactly resembled the sepals in form and colour. The three sepals of the middle flower were united together nearly to the lip, as was the case also with two sepals of the terminal flower. The ovaries of all the flowers were of the normal structure.

The President stated that the Rev. Gerard E. Smith had figured an *Ophrys* with a similar triple column, but his specimen was quite destitute of a lip. He also observed that it might be worth while to examine if this excessive development of the column is always coexistent with the reduced development of the lip; and that this structure was quite distinct from the monstrosity of this plant described by Mr. Ellis, where each of the three petals was transformed into a polleniferous column.—*G. E. D.*

THE PHYTOLOGIST.

ART. CLXVII. — *A History of the British Equiseta.* By EDWARD
NEWMAN. (Continued from p. 700).



a, Diagram of a barren stem.

b, Portion of ditto, natural size.

c, One of the sheaths of the branches.

d, Section of stem.

GREAT EQUISETUM.

EQUISETUM TELMATEIA, Ehrhart.

Equisetum fluviatile, Smith, Hooker, Babington.

THIS beautiful species occurs in almost every county of England, but more abundantly in the neighbourhood of London than in other localities. Hampstead Heath and the neighbouring woods afford several well-known stations; it occurs also in Scotland and Wales, and Mr. Mackay observes that it is frequent in Ireland. It is apparently common on the continent of Europe, but does not reach the extreme north, not being mentioned by Linneus or Wahlenberg as inhabiting Lapland or Sweden.

Although so common a plant, much difference of opinion appears to prevail respecting the degree of moisture required for its nutriment, as will be seen by a reference to the following pages of 'The Phytologist';—588, 618, 621, 648 and 649.

The more I investigate the subject, the more do I feel strengthened in my original view of the case, confessing, however, that my opportunities of judging are confined to two or three localities, of which I select that at Norwood, recorded by Mr. Ilott (Phytol. 295). The site is the brow of the hill, on the road towards Dulwich, below 'The Woodman' public-house at Norwood; the ground is partially waste, having apparently been excavated for brick-earth, and is sufficiently moist for little pools of water to collect in the hollows; partially, however, it is cultivated, there being now (August, 1843), a fine crop of wheat ready for the sickle. The *Equisetum* is abundantly mixed with the wheat in every direction as far as I could see, but its growth is not luxuriant, few of its stems attaining half the height of the wheat, and many falling very far short of even that stature. While this fact, however, proves that it will grow in soil sufficiently dry to produce good wheat, its diminished size affords little evidence on either side, for the constant disturbing of the roots in arable land produces an equally diminishing effect on *E. arvense*, the stems of which in the hedges, where the roots remain untouched, often attain a magnitude four times as great as those in the adjacent fields. On the uncultivated land the most luxuriant growth, measuring four feet and a half or five feet in height, was on the banks where all parts of the plant are comparatively free from being disturbed, and the soil loose, loamy and crumbling; but the approach to the little pools, as well as to exposed, dry, and trodden parts, was marked by a gradual decrease in the size of the plants, until, in the immediate vicinity of the water and trodden paths, the stems were perfect pigmies, scarcely four inches in height, thus inducing the conclusion that, in this locality, water is prejudicial, if not fatal, to the existence of the plant, and that closeness and com-

pactness of soil is also unfavorable; a more extensive record of observation is still to be desired.

It is hinted by Haller that the Roman people ate this plant, but the passage is so brief as to throw little light on the subject.*

Considerable difference of opinion appears to prevail on the subject of its being eaten by animals. Mr. Watson, in one of the passages above referred to, states that horses graze on it, (Phytol. 588). Mr. Gibson says that horses will not eat the plant at all, if they can get anything else, (Id. 618). On the occasion of my first visit to the Norwood station, there were three half-starved cadger's horses upon the waste ground where the *Equisetum* is growing; they devoured eagerly the coarse sour herbage growing about the pond, and almost every green blade they could find; indeed it seemed as though they seldom had an opportunity of making a meal, but they pertinaciously refused to touch the *Equisetum*.

The representations of this plant generally fail to give a correct idea of its figure, from the circumstance that the summit only of the stem is given; in other respects those in 'English Botany,'† Bolton's *Filices*‡ and Dietrich's 'Cryptogamia of Germany,'§ are tolerably correct.

It has already been shown that the nomenclature of this species is somewhat confused, but I trust that botanists generally will agree with me in restoring the earliest (binominal) name. There is little doubt of its being the *Equisetum majus* of Ray|| and of Gerarde,¶ but not the *E. arvense* var. β . of Hudson,** the *Equisetum Telmateia* of Ehrhart,†† the *Equisetum eburneum* of Roth,‡‡ who himself acknowledges it to be Ehrhart's *E. Telmateia*; and, finally, the *Equisetum fluviatile* of Smith, Hooker, and Babington, and of many continental botanists. It also appears clear that it was totally unknown to Linneus, and, consequently, neither named nor alluded to in any of his works. The names given by Ray, Gerarde, and other authors antecedent to Linneus, are dropped by universal consent: that the plant in question is a variety of *E. arvense* will not now be maintained; so that we unavoidably arrive at Ehrhart's name of *Telmateia*, published fifty-five years ago. Ehrhart's names were never, I believe, intended by their author as specific names, and, moreover, have been rejected as fanciful by many of our later botanists; but the latter objection scarcely

* Hoc fuerit *Equisetum* quod a plebe Romana in cibum recipitur. — Hall. Hist. iii. 1, No. 1675.

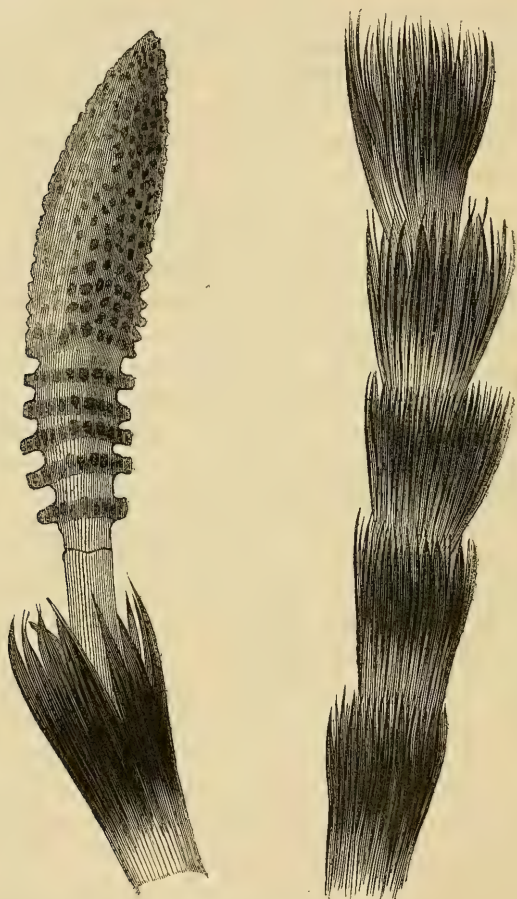
† Eng. Bot. 2022. ‡ Bolt. Fil. tab. 36 and 37. § Deut. Krypt. Gew. pl. 5.

|| Ray, Syn. 130. ¶ Ger. Em. 1113. ** As suggested by Mr. Watson.

†† Ehrh. Beitrage, ii. 159.

‡‡ Roth, Catal. i. 129.

holds good in any instance, and certainly not in the present, for the Greek word *τελματειος*, signifying 'growing in mud,' is less fanciful, as applied to the present species, than the Latin word *fluviale*, or 'growing in rivers.' Moreover, the former objection is overruled in the present instance, by Ehrhart's name having been employed in the '*Flora Danica*,'* a work of acknowledged authority, and recently by Dietrich, as quoted above. I may also add that it is received as authority by Wahlenberg, than whom we have no more careful or pains-taking nomenclaturist.



Fertile stem of *Equisetum Telmateia*.

The roots and rhizoma present no peculiar characters; the latter is

* *Flora Danica*, 1469.

generally of an ebony blackness, and seems to spread with considerable rapidity, so that when once introduced a large patch is soon formed.

The stems are of three kinds, as in the preceding species; *first*, bearing fructification only; *secondly*, bearing both fructification and branches; and *thirdly*, bearing branches only. The exclusively fertile stems come up in March, shed their seed in April, and disappear in May: the figure on the opposite page represents a fertile stem of the natural size and proportions, but divided for more convenient representation: it is nine inches in length, and has six joints, several shorter and subterranean ones having served to unite it with the rhizoma. I have, in some instances, found the total number of joints to be fifteen; the stem, scarcely observable, owing to the great length of the sheaths, is pale brown, smooth and succulent. The sheaths are very large, loose and spreading towards the summit, distinctly striated, and terminate in from thirty to forty long, slightly flexuous, setiform teeth; the sheaths at the base are pale brown, but are much darker towards the summit. The catkin is about two inches and a half in length, and at length an inch and a half in circumference: the scales are very numerous, often reaching four hundred in number; they are arranged in whorls, of which the lower ones are always sufficiently obvious.

When the stem bears both fructification and branches, it is seldom in perfection until the month of August: such stems are far less numerous than in either of the preceding species, and bear but a small proportion to those which are exclusively fertile or exclusively barren: the catkin is much smaller than under ordinary circumstances: the stem also is smaller, although having longer joints; the sheaths are shorter, less spreading, and of a pale green colour; the branches are placed on the second to the ninth or tenth joint, counting from the catkin; in all the specimens I have seen they are ascending.

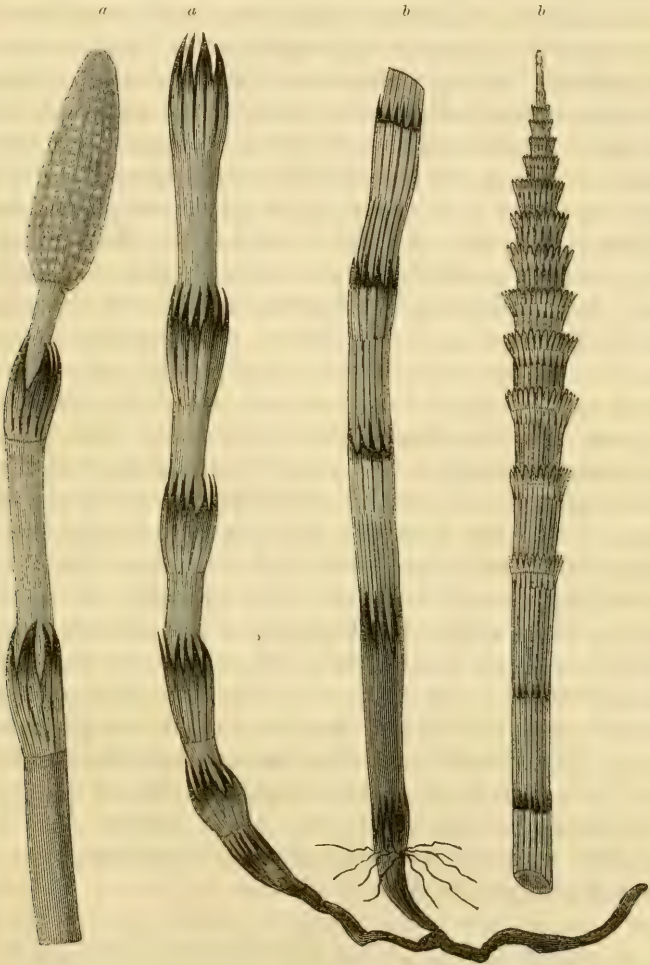
The barren stem is much larger than in any other species of *Equisetum* with which I am acquainted: it occasionally attains a height of seven feet, and a circumference of more than two inches; its outline and proportions are shown, on a very reduced scale, at page 721, fig. *a*, and one of the internodes, with its accompanying sheaths, is represented of the natural size at fig. *b*.

The following is the description of a living stem now before me, of the average size. The entire length above ground, and including the ascending branches, is fifty-four inches; the circumference, at twelve inches from the ground, is an inch and a half, but decreases upwards until it becomes extremely slender, terminating almost in a point.

The surface of the stem is perfectly without ridges or furrows; the number of joints is forty: the colour of the internodes is white, with the slightest tinge of green, but those on the lower part of the stem often change to intense black: the black makes its first appearance in spots or blotches, giving the stem a singularly variegated appearance, but it rapidly spreads, and finally entirely occupies all the lower internodes. The sheaths, at the stouter part of the stem, are fully half an inch in length, and the teeth are as much more: the former have about thirty-two deep and distinct striæ, which are furnished with rows of siliceous particles at their edges: the spaces between the striæ have broad shallow furrows. The teeth are slender, setiform, closely appressed to the stem, frequently adhering at the summit in twos and threes, and furnished with dilated, semi-membranous, somewhat ragged edges at the base. The sheaths are pale green, with a distinct blackish ring at the summit; the teeth are black, with the membranous edges brown, and, in the lower sheaths, often clothed with a brown, byssoid pubescence. Each of the joints, with the exception of five forming a slender apiculus at the summit, and six nearest the ground, is furnished at the base of its accompanying sheath with a whorl of slender branches: those of the lower sheaths are short and recurved, while those near the summit are nine inches in length, and nearly erect: the varied direction of the branches is shown at fig. *a*. The number of branches in a whorl is very various: the respective numbers, counting from the summit, are these: — five, six, seven, eight, nine, ten, thirteen, fourteen, fifteen, sixteen, eighteen, twenty, twenty-five, twenty-nine, thirty-three — repeated eleven times, thirty, twenty-eight, and sixteen, making a total of six hundred and seventy-eight. The colour of the branches is a delicate green, so beautiful as to attract the eye at a considerable distance. Each of these branches is composed of about eight or nine longish joints, and each joint terminates in a loose sheath: the branches have either eight or ten ribs, united in pairs, and rough with siliceous particles: the sheaths terminate in four or five teeth, each furnished at the extremity with a slender black bristle: a pair of ribs ascends into each of the teeth, and each rib is furnished, near its termination, with a series of rather long siliceous points, which give it a pectinated appearance. Such may be received as the description of a stem of normal size and characters, and the variations are very unimportant, chiefly consisting in size and number of branches, but rarely interfering with the figure of the frond, unless caused by circumstances, either of wet or drought, both apparently uncongenial to its perfect development. One character, how-

ever, must not be passed over in silence, and that is, the liability of the branches to emit two, three, four, or even five, secondary branches, from the summit of the second joint: these branches are usually slender, and when present, they give the plant a beautifully compound and feathery appearance.

The stem presents a transverse section very different from that of any other species (fig. *d*).



THE CORN-FIELD EUISETUM.

EUISETUM ARVENSE, *Linneus*.

THIS is, beyond all comparison, the most abundant of our British *Equisetums*; indeed it is a serious nuisance to the farmer and gardener, whose utmost efforts to eradicate it frequently prove ineffectual. It appears to have little choice of locality, being equally common in dry and moist situations.

The name of this species is now universally received, and I am not aware that any doubt exists as to its being the *Equisetum arvense* of Linneus, although there is some confusion in the nomenclature of the specimens in the Linnean herbarium, as already shown. The barren stem of this plant is without doubt the '*Equisetum arvense longioribus setis*' of Ray's '*Synopsis*,'* and it also seems to me that the '*Equisetum pratense longioribus setis*,' of the same work, although added by the careful Dillenius, is the same plant. Still this latter has sometimes been considered distinct as a species, and identical with the continental *E. pratense*, which is so carefully described by Roth,† and previously, although not so fully, by Ehrhart.‡ Roth, however, admits that he had never seen the catkin, and the circumstance of this being found on a branch-bearing stem forms the chief diagnostic of the species. Willdenow, who describes the species,§ confesses he has not seen it at all, and almost every other author omits it altogether: thus it appears not improbable that some form of *E. arvense* was the plant originally intended. The '*Equisetum nudum minus basiliense*' of Ray can be none other than the fertile stem of *E. arvense*, as I think is sufficiently proved by the following passage. — "This was first shew'd to Mr. Lawson at Great Salkeld, but grows in so great plenty there and everywhere on the banks of the River Eden, that he could not but wonder that this was the first time of its being observ'd in England. 'Tis an early and quickly fading Vernal Plant, which might probably be the Occasion of its not being hitherto taken notice of by those curious Gentlemen, who commonly began their Circuits too late in the Year for such a Discovery."|| The '*Equisetum nudum minus variegatum basiliense*' of Bauhin,¶ is quoted by Smith as synonymous with his *E. variegatum*, and by Linneus as synonymous with his *E. hyemale*, which plants widely differ from the early disappearing plant described by Mr. Robinson in the passage above cited.

* Syn. 130.

† Roth, Flor. Germ. iii. 6.

‡ Ehrhart, Beitrage, Band iii. p. 77, n. 36.

§ Species Plantarum, v. 6.

|| Th. Robinson Ess. towards a Natural History of Westm. and Cumberl., p. 92; as quoted in Ray's Synopsis, p. 130.

¶ Pin. 16, Prodr. 24, Theatr. 250. no f. teste Smith.

The figures of this very common plant are so different, that it seems impossible to reconcile the discrepancy otherwise than by a reference to the protean character of the original: that in Curtis's '*Flora Londinensis*'* may perhaps be cited as the best.

The corn-field *Equisetum* is supposed to be very injurious to cattle; it is, however, most probable that they will not touch it, unless compelled by extreme hunger.

This seems to be the only British species in which the fertile and barren stems are perfectly and constantly distinct, and of a different structure, the former having generally completely vanished long before the latter have acquired their full development. In those species which are constantly simple, *i. e.*, without whorls of branches, it appears the character of each stem to produce a terminal catkin, consequently, there is no observable difference in the structure of the fertile and barren stems: in the following species, *E. palustre* and *E. fluviatile*, the same general character obtains, the grand distinction being in the almost constant presence of whorls of branches: in *E. sylvaticum* a marked difference is observable, for not only are a portion of the stems exclusively fertile and rapidly evanescent, but the *mixed* stems — those which bear both catkin and branches — are decidedly different to the exclusively barren ones, being more succulent, and having larger and looser sheaths: in *E. umbrosum* the discrepancy between fertile and barren stems is so great, that the combination of the two, although common, has not been noticed by our British authors: in *E. Telmateia* these mixed stems are comparatively rare exceptions, and have almost been regarded as unnatural or monstrous, so that we arrive, by a nearly imperceptible transition, at *E. arvense*, in which the two kinds of stem are perfectly and constantly distinct.

The figure at p. 727 represents two stems of the corn-field *Equisetum*, of the natural size, *a a* being the fertile, *b b* the barren stem: they are drawn from living specimens, and show the immature barren stem synchronous with the perfectly ripe fertile one, both stems ascending from the same rhizoma; and I may here remark that the appearance of the barren stem at this early period, is very similar in *E. sylvaticum*, *umbrosum*, *Telmateia* and *arvense*, so that the figure referred to gives a good idea of them all. The fertile stem selected for the figure, as one of average size and proportions, may be thus described: it is about nine inches in length, and is divided into eight joints, which decrease in length from the catkin downwards: the stem

* Curtis, *Flor. Lond.* fasc. 4, t. 64.

is extremely succulent, of a pale brown colour, smooth, and entirely without furrows: the sheaths are loose, somewhat gibbous, and distinctly ribbed: they are of a pale yellowish brown colour at the base, and have about ten dark brown long-pointed teeth: these occasionally adhere at the points, in twos and threes.

The catkin is an inch and a quarter in length, rather slender, blunt and rounded at the apex, and stands on a distinct foot-stalk, usually about equal to half its own length; it is of a pale delicate brown colour, occasionally tinged with rosy red; the scales are very variable in number, being sometimes scarcely a hundred, at others reaching two hundred and fifty. The catkin is mature in May, and sheds abundance of seed, of a beautiful green colour.

The following is a description of a barren stem. Length twenty-eight inches; very slender at the summit, and increasing to the size of a goose-quill at the base: the colour is glaucous green towards the summit, and pale green towards the base: the stem has from ten to sixteen distinct but not very deep furrows, and the same number of equally distinct ribs, which are furnished with very minute siliceous points; the number of joints is twenty-one: the length of the internodes varies from half an inch at the summit to two inches at the base: the sheaths, including the teeth, are scarcely more than a quarter of an inch in length; they are but little larger than the stem, not, however, clasping it tightly, as in *E. fluviatile*; they are furrowed in the same manner as the internodes, but the ribs are double: the teeth are ten to sixteen in number, wedge-shaped, acute, and dark brown or black; they are commonly, but not constantly, furnished with a narrow, brown, marginal membranè: I have never seen the teeth of this species with the distinct, white, semi-hyaline membrane, which appears constant in *E. palustre*, *E. umbrosum*, and some other species. There is a whorl of branches on each of the thirteen upper joints, the eight lower ones being branchless: the number of branches in a whorl varies from four to thirteen. The branches are eight or ten inches in length, rather stout, spreading, slightly ascending, four-ribbed, and composed of ten or twelve joints, of which the apical ones are shortest; the basal joint is shorter than the three which follow it, but is much longer than in *E. palustre*, and still more so than in *E. umbrosum*: the short sheath at the base of each branch usually terminates in obtuse brown segments: the other sheaths are loose, and terminate in four long acute teeth, which are generally concolorous throughout; and a single rib invariably ascends undivided to the extreme point of each tooth.

The variations of the barren stem of this plant appear almost infinite; perhaps its normal character may be defined as nearly erect, with spreading and slightly drooping branches: the following is an enumeration of the more strongly marked varieties.

A. — Stem erect; branches simple, very rigid, erect and densely crowded.

B. — Stem erect; branches simple, less rigid, spreading, slightly ascending.

C. — Stem erect; branches simple, gracefully drooping.

D. — Stem erect; branches compound in the same manner as in *E. sylvaticum*, and gracefully pendulous.

E. — Stem almost prostrate, with semi-erect, very long, compound, feeble branches.

F. — Stem prostrate, with scattered, simple, irregular, semiprostrate branches.

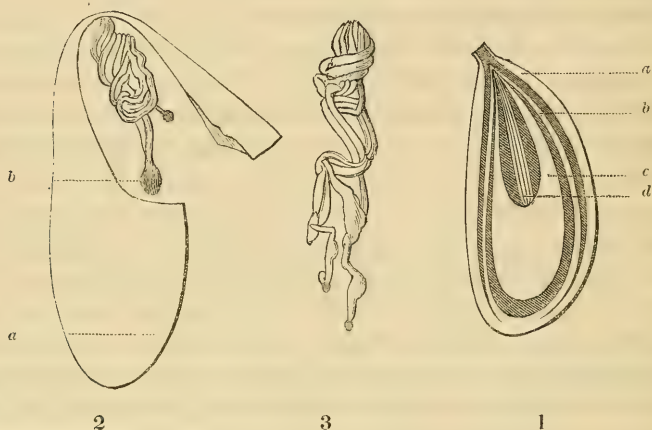
EDWARD NEWMAN.

ART. CLXVIII.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from page 659).

HAVING had opportunities, during a recent visit to North Wales, for extending my observations on the embryo of *Juniperus communis*, I now resume this subject, after a very careful examination, as one of considerable importance in the present enquiry. On reference to my former observations (*Phytol.* 625, fig. 3, 4), it will be seen that the naked ovule consists at first of a wide-mouthed sac, at the bottom of which is seated a roundish nucleus, somewhat flattened at the top. The nucleus, at this early stage, is composed of a simple mass of cellular tissue, without any tunic. The upper part of the ovules (of which there are three in each flower) projects beyond the floral integument, and there is thus offered every facility for direct communication between the pollen and the nucule; so much so, that the grains of pollen might probably gain immediate access to the interior without the intervention of pollen tubes. Indeed, if the views of Schleiden were well founded, and if the upper part of the ovule be denied the function of a stigma, we might expect that this plant would clearly and readily exhibit proof of such access. If we fail to trace the pollen-tubes into the nucleus, where all the parts are so much exposed to view, the integuments so few, and the whole structure so much simplified,—in vain shall we hope to verify the statements of those who maintain this doctrine; and for this reason I strongly recommend

those who are interested in the enquiry, to lend their aid in the investigation of this plant at the proper season. From the period when the flowers expanded to the middle of August, I had no means of studying the subject; and it will be seen by what follows, that the ovule, during this interval, has undergone a most remarkable change. To illustrate my remarks, I have judged it best to present the annexed diagram (fig. 1), representing a longitudinal section of the ovule in the third month after the expansion of the flower.



Juniperus communis.

Fig. 1.—Longitudinal section of ovule three months after the expansion of the flower. *a*, primine. *b*, secundine. *c*, tercine or albumen, having a cavity (embryo-sac?) in the upper part. *d*, a bundle of loose cellular tissue, suspended from the top of the cavity, and bearing at its extremity the rudiment of the embryo. The embryo, when mature, extends throughout the whole length of the albumen.

Fig. 2.—Longitudinal section of the tercine of the ovulum, dissected, to show the rudimentary embryo, *b*, suspended from a bundle of vessels.

Fig. 3.—The bundle of vessels in a younger stage, partly separated, to show the structure.

The outer portion of the ovule (*a*) has become much enlarged in all parts except at the summit, where there still exists a minute orifice, and the substance, once soft and cellular, is now altered into a hard bony shell, lined on the inside with a thin membrane, which may be detached when the berry is fully ripe. The next integument (*b*) is the secundine, white, and somewhat leathery in texture, attached by its base to the bottom of *a*. It corresponds with the nucleus figured at p. 625: all the contained parts have been subsequently developed.

The tercine (*c*) is suspended from the top of *b*, and constitutes the albumen in the mature seed. It is already white and amylaceous internally, and is surrounded by a yellowish skin. The upper part of the tercine or albumen contains a cavity (the embryo-sac) which gradually narrows to the top, where there is no visible orifice. Within this cavity is suspended, from the apex of the tercine, a bundle of fibres (*d*), composed of large, elongated, crooked cellules, enlarging as they descend, each fibre slightly cohering to those which are in contact with it. Three or four of the terminal cells of the bundle, are tipped each with a roundish mass of opaque granular matter, one of which at length grows larger than the rest; and this it is, which, after much pains devoted to the enquiry, I am led to consider as the rudimentary embryo.* It is shown in the drawing at fig. 2, where *a* represents a longitudinal section of the albumen, the upper part of which is lacerated by art, in order to display the contained parts, namely, the rudimentary embryo (*b*) suspended by the lax and tortuous bundle of vessels already described, and which in an earlier stage is seen at fig. 3.

In a few instances the immature or green berries of the present season had the embryo completely formed, extending from one end of the albumen to the other, as in the fully ripe berries of the former year, still remaining on the same plants. In these the umbilical cord (*d*) is pushed up and crumpled into a narrow space at the top, and by its presence at that stage has materially assisted me in ascertaining that the body *c* is not itself the embryo, but the nidus in which the embryo is elaborated, *long after the usual period of fecundation*.

From the foregoing account it seems very improbable that so many newly developed parts should derive their existence from a pollentube, while the embryo itself is still in a rudimentary state; and the idea of the formation of a *vésicule embryonnaire* (*utricule primordiale*, Mirbel), such as Brongniart describes it, appears to be utterly inadmissible in the present case. Questions of this intricate nature are however to be disposed of only after rigorous investigation; and it is hoped that some of the readers of 'The Phytologist' will be able to supply the links which are wanting to complete the present enquiry.

As an appendix to my remarks on *Statice Armeria* (Phytol. 657), I wish to state that during my absence from home two other species,—

* It may possibly be the *utricule primordiale* of Mirbel and Spach, "whose special office it is to form the embryo, (dont l'office spécial est de commencer l'embryon.)"

S. Limonium and *S. spathulata*,—were carefully examined and compared with the one already described. In *S. Limonium*, the cellular body within the ovarium proceeding from the styles, is attached to the apex of the ovule, but so slightly, that I have not succeeded in dissecting away the surrounding parts without breaking the connexion. The secundine has no conical cavity at its apex, like that seen in *S. Armeria*, and there is no appearance of penetration : on the contrary, the suspensor merely covers the apex of the ovule, like a pentagonal cap. A similar structure is observable in *S. spathulata*, only that the suspensor is crooked, and obliquely attached to the ovule. In both these cases, the connexion exists previously to the expansion of the flower-bud.

Having paid some attention to *Tropæolum majus* since the essay on that plant was republished (*Phytol.* 659), candour obliges me to confess that I have not been able to verify some of the statements contained in Dr. Giraud's paper ; and I am compelled either to question the aptitude of his observations, or to admit my own inability to follow him in the path which he has trod. I do not deny that his conclusions are just, but they seem to me to be founded upon data less cogent than actual demonstration. I am not even satisfied that he is correct in saying that the ovule is *anatropous* : if it be so, the change must take place at a much earlier period than the one which he indicates. But admitting, for the present, that his remarks are accurate, I would observe that the ovule of *Tropæolum* is by no means, as Schleiden himself confesses, an easy subject for investigation ; and that whoever succeeds with that, may calculate on still greater success in the examination of those which I have endeavoured to illustrate : and to such an one I would very willingly resign the task, as much more competent than myself to explore these secrets of Nature. It is remarkable enough that *Tropæolum majus* has been selected by Schleiden as one of the examples in support of his doctrine, and he has given figures which exhibit the pollen-tube in actual communication with the ovule, introduced within the micropyle. It is to be feared that Schleiden is not the only person chargeable with having *imagined* rather than actually *seen* some things connected with this intricate subject ; and the "necessity of adopting a good method of oft-repeated, scrupulous and patient observation" cannot be too much insisted upon. In no case can the microscope be safely trusted, unless the parts can be separated and displayed by careful manipulation. Much of the knowledge that is acquired while engaged in dissecting objects under the microscope, is otherwise unattainable ; and many

optical illusions are dispelled by calling in the organ of touch to aid and correct the eye in these subtle disquisitions.

W. WILSON.

Orford Mount, Warrington,
August 31, 1843.

ART. CLXIX. — *Rarer Plants observed near Weymouth.*

By G. S. GIBSON, Esq.

THE following is a list of some of the rarer plants observed in the vicinity of Weymouth, during a fortnight's sojourn in that town in the summer of 1843.

- | | |
|--|---|
| <i>Adonis autumnalis.</i> Corn-fields at Portland. | <i>Pisum maritimum.</i> Chesil bank, opposite Wyke. |
| <i>Papaver hybridum.</i> Near Wyke. | <i>Rosa spinosissima.</i> Portland. |
| ——— <i>Argemone.</i> Portland. | <i>Petroselinum segetum.</i> Hedges, not uncommon. |
| <i>Glaucium luteum.</i> Stony beach. | <i>Sison Anomum.</i> Hedges, frequent. |
| <i>Fumaria capreolata.</i> Lane at Chesil, Portland. | <i>Bupleurum tenuissimum.</i> Field by Backwater on the west side, beyond the gas-works; also near the sluice, Lodmoor. |
| <i>Cochlearia danica.</i> Chesil bank, by the rd. | <i>Ænanthe pimpinelloides.</i> Moist meadows &c. frequent. |
| <i>Cakile maritima.</i> Sandy shore. | <i>Silaus pratensis.</i> Meadows. |
| <i>Arabis hirsuta.</i> Rocks at Portland. | <i>Crithmum maritimum.</i> Chesil bank, west of the bridge. |
| <i>Silene anglica.</i> Very sparingly near the sluice, Lodmoor. | <i>Pastinaca sativa.</i> Fields and road-sides. |
| <i>Linum angustifolium.</i> Near the Ferry-bridge; Backwater banks near gas-works, &c. | <i>Torilis infesta.</i> Road-sides. |
| <i>Geranium lucidum</i> & <i>columbinum.</i> Rocks at Portland. | <i>Smyrniurn Olusatrum.</i> Cliffs nr. the pier. |
| <i>Medicago maculata.</i> Cliffs &c. in several places. | <i>Eryngium maritimum.</i> Chesil bank and by Ferry-bridge. |
| ——— <i>denticulata.</i> Sparingly near the Ferry-bridge. | <i>Rubia peregrina.</i> Rocks at Portland. |
| <i>Trifolium ornithopodioides.</i> Chesil bank close to Portland, and at Portland. | <i>Asperula Cynanchica, Fedia Auricula</i> and <i>Prenanthes muralis.</i> Portland. |
| ——— <i>maritimum.</i> By the Backwater and the cliffs. | <i>Carduus nutans</i> (white flowers). Portland, near the church. |
| ——— <i>scabrum.</i> Sandy shore &c. fr. | ——— <i>Marianus.</i> Portland. |
| <i>Vicia gracilis.</i> Cornfields at Portland. | <i>Cichorium Intybus.</i> Corn-fields and road-sides. |
| ——— <i>angustifolia.</i> Cliffs towards Sand-foot castle. | <i>Conyza squarrosa</i> and <i>Solidago Virgaurea.</i> Portland. |
| ——— <i>lutea.</i> Field on the cliff near Sand-foot castle; stony beach at Lodmoor | <i>Senecio sylvaticus.</i> Cliffs by Backwater. |
| <i>Lathyrus Aphaca.</i> Fields &c. at Portland, abundant; also near Wyke. | <i>Aster Tripolium</i> & <i>Pyrethrum maritimum.</i> Salt-marshes. |

- Campanula glomerata*. Maumbury, near Dorchester.
 ——— *hybrida*. Portland, in corn-fields.
Gentiana Amarella. Maumbury, near Dorchester.
Erythræa pulchella. Portland cliffs and by Backwater.
Convolvulus Soldanella. Chesil bank near the road.
Borago officinalis. Portland.
Linaria spuria. At Lodmoor, and road to Radipole.
 ——— *Elatine*. Fields, rare.
Galeopsis Ladanum. Corn-flds. Portland
Orobanche elatior. Maumbury near Dorchester.
 ——— *minor*. Sparingly at Portland.
Plantago maritima and *Glaux maritima*. Marshes near the Backwater.
Salsola Kali. Sands near Ferry-bridge.
Chenopodium maritimum. Salt-marshes.
 ——— *fruticosum*. Chesil bank, west of the bridge.
 ——— *ficifolium*. Near the Backwater, very rare.
 ——— *murale*. Waste ground.
Atriplex portulacoides. Marshes by Backwater.
 ——— *littoralis*. Chesil bank.
Beta maritima. Salt-marshes and shore.
Salicornia herbacea. Marshes by Backwater.
Rumex pulcher. Road-sides, frequent.
Thesium linophyllum. Cliff by Sandsfoot sands, sparingly.
Euphorbia Paralias. Chesil bank, near the road.
 ——— *Portlandica*. Portland and Chesil bank.
- Euphorbia amygdaloides*. Portland.
Mercurialis annua. Waste ground.
Triglochin maritimum. Marshes, Radipole &c.
Iris fetidissima. Hedges, frequent.
Tamus communis. Hedges.
Ruscus aculeatus. Roadside nr. Broadway.
Ruppia maritima and *Zannichellia palustris*. Salt-marsh ditches, near the sluice.
Zostera marina. In the sea, near the jetty.
Juncus acutus. Shore of the backwater.
Scirpus maritimus. Near Radipole, &c.
 ——— *Savii*. At Portland.
Carex arenaria. Sands near Ferry-bridge.
Alopecurus bulbosus. Salt-marshes.
Ammophila arundinacea and *Phleum arenarium*. Sandy shore.
Gastroidium lendigerum. Backwater cliffs; also near the preventive station, northward.
Poa distans, *maritima* and *procumbens*. Salt-marshes by Backwater.
Festuca bromoides. Backwater cliffs.
 ——— *uniglumis*. Sandy field near Ferry-bridge, and by the road on Chesil bank.
Avena fatua. Fields and cliffs frequent.
Hordeum pratense. Fields &c. frequent.
 ——— *maritimum*. Lane near the gas-works.
Triticum loliaceum. Road near Sandsfoot castle, &c.
 ——— *junceum*. Sandy coast by Ferry-bridge.
Brachypodium pinnatum. Cliffs &c. plentiful.
Rottbollia incurvata. Salt-marshes abundant.

Several plants peculiar to the neighbourhood of the sea, but not uncommon near it, such as *Silene maritima*, *Arenaria marina* and *ploides*, *Statice Armeria*, &c., I have purposely omitted.

The following, which are stated in the 'Botanist's Guide' to grow near Weymouth, I have searched for unsuccessfully; namely, *Vicia bithynica*, *Lathyrus Nissolia*, *Polycarpon tetraphyllum*, *Amaranthus*

Blitum, Cladium Mariscus, Calamagrostis Epigejos and lanceolata, and Agrostis setacea; and am ready to fear that most of them have become extinct. Salicornia radicans, too, does not appear to grow at Weymouth, and probably S. herbacea, which is very fine and abundant, has been mistaken for it.

I explored all the localities given for *Vicia lævigata*, without success: these localities are, in the 'Botanist's Guide,' Portland Island, Chesil bank, and Lodmoor near Weymouth; in the 'English Flora,' a field half way between Weymouth and Portland ferry, near the sea. At Portland island and the Chesil bank I could discover nothing at all similar to it, though the latter was examined for several miles; at Lodmoor the stony beach produces *Vicia lutea* abundantly, as also does a green declivity of the cliff, about half way between Weymouth and the ferry, probably the field referred to in the 'English Flora;' but in neither place could I see any trace of *V. lævigata*. Perhaps some of your correspondents may be able to state whether it has recently been found near Weymouth, or whether there is now any authentic locality for this very rare plant.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXX. — *Notice of 'A Visit to the Australian Colonies. By JAMES BACKHOUSE.'* London: Hamilton, Adams & Co. 1843.

(Concluded from p. 608).

ON the route from Appin to Illawarra, over a sandstone country, elevated about 2000 feet above the level of the sea, four species of *Grevillea* were observed, one of them having brilliant scarlet blossoms, and a gay *Mirbellia*, with bluish purple flowers, besides several species of *Dillwynia*, *Pultenæa* and *Boronia*, and the gigantic lily, *Dorranthes excelsa*. In descending, the sides of a rough track, called the Bulli Road, were ornamented with a gay *Prostanthera*, *Pimelia hypericifolia*, *Pittospermum undulatum* and another fragrant species of this genus, and a handsome white *Clematis*.

In a forest in the vicinity of Wollongong —

"Some large species of fig are met with, as well as large gum-trees, and species of *Tristania*; also *Metrosideros capitata*, called here turpentine-tree, which attains a large stature, and *Sterculia acerifolia*, which has large clusters of small flame-coloured flowers, that produce a striking appearance in spring. The cabbage palm, *Corypha australis*, abounds by the sides of water-courses. Great numbers of this palm, which has elegant, fan-like foliage, and hard, purple seeds, the size of a marble, are

destroyed for the sake of their trunks and leaves. The trunks, which are sometimes eighty feet high, and are rough with scars where the leaves have fallen off, are occasionally split, and converted into posts for fencing; they are also used for slabs in temporary buildings. The inside being rather sweet, and not hard, though fibrous, is eaten by pigs. The mature leaves are used for thatching, those just beginning to expand, for making hats, and the heart, or cabbage, of the young, unexpanded leaves, is eaten either raw or cooked. A heart-leaved species of pepper climbs like ivy among the lofty trees, and hangs in festoons from their branches, almost to the ground. Ferns and orchidaceous plants abound on the trunks and limbs of many of the trees. One of the latter, *Sarcochilus falcatus*, with blossoms nearly as white as snowdrops, is now in flower. In these forests, there are many epiphytes of the *Orchis* tribe, the habits of which are worthy of notice, both as exhibited here, and in other parts of the Colony. *Dendrobium speciosum* generally grows in fissures of the sandstone rocks, among the loose fragments, mixed with vegetable matter, but I once met with it, of extraordinary size, in the cleft of an old fig-tree, among vegetable remains. *D. linguiforme* generally creeps on grit rocks, rarely on the living bark of figs and *Casuarinæ*. The other species of *Dendrobium*, with the genera *Sarcochilus* and *Gunnia*, grow on the bark of living trees. Once I saw *Dendrobium calamifolium* on a rock; but both this and the other species growing on living trees, begin to languish when the trees to which they are attached, die, probably from the portion of their roots adhering to the bark becoming dried; a circumstance that is prevented, when they are cultivated in England, by the moist atmosphere of an orchideous-house. The Australian species of *Cymbidium* universally strike their roots into the decaying portions of trees, in which they may sometimes be traced many feet. Once only, I met with one growing from among the paper-like laminæ of the bark of *Melaleuca viridiflora*, and it looked sickly.”—p. 426.

On the way to Shoal Haven, *Seaforthia elegans* is plentiful in shady places, and many parts of the forest are gay with a species of *Goodia*, which forms a large shrub, covered with racemes of yellow, pea-like blossoms, tinged with orange. A species of indigo, with rosy pink flowers, and tree-nettles, one of which was sixteen feet in circumference, attracted our traveller's attention. *Asplenium Nidus* and *Acrostichum alcicorne* were growing on the limbs of enormous fig-trees, and even some of the lofty cabbage-palms were encircled by the latter, while ferns of less magnitude—*Polypodium tenellum* and *quercifolium*, and *Niphobolus rupestris*—were climbing the trunks of trees like ivy, and others—as *Adiantum formosum* and *assimile*, *Doodia aspera* and *Lomaria Patersonii*—were scattered about the surface of the ground, intermingled with tree-ferns of the genus *Alsophila*, besides *Calanthe veratrifolia*, and several other terrestrial Orchideæ. In a subsequent walk, the rock-lily, *Dendrobium speciosum*, was in blossom on a rock, with a spike of white flowers, fading into yellow. Other specimens of the tree-nettle were measured, and found to be eighteen, twenty, and twenty-one feet in circumference. These are

probably the largest and most severe nettles in the world ; our author found the sting as painful as that of a wasp : the leaves are heart-shaped, and some of them six inches across : the stinging hairs are not the most numerous, and are readily distinguishable when held to the light by the vesicle of poison at their base. On the ascent of the Cambewarra mountains, *Dendrobium ruscifolium* was observed in flower on the trees, and two smaller epiphytes on mossy logs nearer the top of the mountain.

In the neighbourhood of Goulburn are certain plants allied to those of England—such, for instance, as some species of *Potamogeton* and *Villarsia*—while others—as *Typha latifolia* and *Myriophyllum verticillatum*—are thought to be actually identical. At Arthurslee, white clover, trefoil, a spinous-seeded medic, rib-grass, rye-grass, shepherd's purse, *Erodium cicutarium* and *moschatum*, and some other English plants, had established themselves, as is the case in many other parts of the colony ; they spread and thrive often more vigorously than in their native soil. This fact leads us to the often mooted question of interchanging the productions of distant climes. Wherefore should not we gladly receive the beautiful products of other regions, and adopt them as our own ? More than a hundred of our British plants are perfectly naturalized in Australia, and we may fairly anticipate the day when Australia shall contribute her quota towards the Flora of Great Britain. The mode of introduction matters but little : at first it may be intentionally introduced into gardens with care and pains-taking, but in a few generations the plant may escape its destined boundary, the seeds may be conveyed by birds or scattered by the wind, and the produce may become so established that our endeavours to eradicate it would prove wholly fruitless.

After a voyage to Hobart Town, our traveller visited Port Adelaide, on the 30th of November, 1837 ; and we have the following sketches of its botanical productions.

“We walked about seven miles to Port Adelaide. The way was over two level plains, separated by a slight, sandy rise, covered with wood. The soil of the plains was a reddish loam, having a slight admixture of sand and calcareous matter. They were covered with tufted grass and small herbs. Among the latter was a species of *Eryngium*, a foot high, the leaves of which are eaten with avidity by cattle, and some small yellow-flowered everlastings. Near Port Adelaide, the land becomes saline, and produces crimson *Mesembryanthemums*, of three species, along with numerous maritime shrubs. On a sand-bank separating the plain from the salt marsh, which borders the creek or inlet that forms the harbour, there are trees of a species of *Callitris*, resembling cypress. These are here called pines, and have trunks about 40 feet high, which are used for piles. *Casuarina quadrivalvis* and *Banksia australis* likewise grow

here. On this bank there was an *Orobanche*, very like *Orobanche minor* of England.
 * * The salt marsh was covered with two species of *Salicornia*, one of which was shrubby; interspersed among these were two species of *Frankenia*, one of which was bushy, about a foot high, and besprinkled with rosy, pink blossoms, the size of a silver penny. The creek was margined with mangrove, *Avicennia tomentosa*."—p. 510.

"A white-flowered *Morna*, a downy, drooping-flowered *Pimelea*, a broad and a narrow-leaved *Xanthorrhœa*, and several other striking plants, were growing in the forest on the red sandstone. On the argillaceous hills, there was a shrub belonging to the *Gentianæ*, with leaves resembling those of the greater periwinkle, and a *Pomaderris*, with pale leaves next to the heads of flowers. *Todea africana*, *Grammitis rutæfolius*, and some other ferns, were also here. Upon the limestone hills were a broad-leaved *Goodenia*, an *Orobanche*, and *Lobelia gibbosa*: this last is a singular annual, flowering after its leaves have faded. A considerable number of curious insects were feeding in a thicket on the blossoms of a *Leptospermum*."—p. 520.

Near Albany, in King George's Sound, several remarkable plants attracted our traveller's attention.

"Among these may be enumerated *Kingia australis*, which resembles a grass-tree, of about eight feet high, but differs in its flower-stems and blossoms; *Sollya heterophylla*, which produces elegant blue flowers, on a privet-like, half-climbing bush; *Anthocercis viscida*, which forms a large, bushy plant, with striking, white flowers, and grows close upon the beach; and *Cephalodea follicularis*, which has small, whitish flowers, on a stalk a foot and a half high, and which produces pitcher-like vessels among its leaves, at the base of the flower-stem: the pitchers have lids, are an inch deep, contain water, and often drowned insects, and are of very singular structure." p. 527.

On the route to Freemantle, on New Year's Day, 1838, the *Nuytsia floribunda* is described as attaining a height of forty feet, and a circumference of six feet; its top was crowned with a mass of golden, orange or yellow flowers: other beautiful flowers were in blossom, a yellow *Calothrix*, a yellow and red and a sky-blue *Leschenaultia*, a crimson linear-leaved *Callistemon*, a scarlet *Melaleuca*, a crimson *Calothamnus*, and several species of *Jacksonia*.

And here we must take our leave of this highly interesting volume. Our quotations have been more copious, and our notice has extended to a greater length than we originally intended, but we trust that our readers will not object to it on these accounts, since we have presented them with a more complete sketch of the vegetation of these regions than has ever been given in so condensed a form. With regard to the localities, we fear there may be some difficulty in following them without a map, since many of the names are but of yesterday, and none of them can lay claim to much antiquity. In the present day, however, maps of these colonies are daily becoming more numerous and more correct, and these will furnish the means of tracing our traveller throughout his arduous and philanthropic pilgrimage. We

lay down the volume instructed and improved by its perusal, and, however distant such an end may have been from the real object of his journey, the scientific world must acknowledge having received at the hands of James Backhouse an invaluable contribution towards the Natural History of Australia.

ART. CLXXI.—*Varieties.*

365. *New locality for Saxifraga Hirculus.* I have taken the liberty of sending you a few specimens of the rare *Saxifraga Hirculus* from a new locality, which I discovered in September, 1840, on the Westmoreland mountains. The place where I found it growing very plentifully, is a marshy piece of ground about three and a half miles S.E. from Crossfell mountain, about five miles N.W. from Caldron Snout, a waterfall already mentioned in your pages (*Phytol.* 74 and 113), and about a mile and a quarter S.W. from a shooting-box erected last year by the Earl of Thanet, at a place called Netherhearth. The specimens enclosed were gathered in August, 1842, when I paid a second visit to the spot: at the same time, and about 200 or 250 yards to the north of it, I discovered *Polemonium cæruleum* growing upon a limestone rock. I was very much surprised at meeting with the latter plant in such a wild and elevated situation, never having heard of its being found growing wild, even in more sheltered places, in this part of the country, but there cannot be the slightest doubt of its being indigenous.—*John Bell; Middleton in Teesdale, August 19, 1843.*

366. *New locality for Melittis grandiflora.* The readers of your valuable periodical may be pleased to know that *Melittis grandiflora* has been found in a wood on the Cotswolds, four miles from Cheltenham: this, I believe, is the most northern habitat yet known for this handsome plant. It was found last year for the first time, in a wood called Puckham Scrubs, by Mr. Gordon, of this town: it occurs in several spots in the same wood. In a boggy meadow near this, hundreds of the beautiful *Parnassia palustris* are now in bloom.—*J. Buckman; Cheltenham, September 2, 1843.*

367. *Note on an apparently undescribed Hieracium.* The plant I now enclose is not described by any writer on British plants. I have it under the MS. name of *Hieracium Hypochæroides*. The plant grows at Malham Cove, and other places in the neighbourhood of Settle (in Yorkshire). You will find the plant mentioned by Smith

in 'English Flora,' (iii. 375), as *Hypochæris maculata*: you will also find the same plant referred to the *H. maculata* by the following authors, viz., Withering, in his fifth edition, page 852; Watson, in his 'New Guide,' page 285; and Baines, in his 'Yorkshire Flora,' page 64. It is now fourteen years since I examined this plant, and found it to belong to the genus *Hieracium*; and as it is now upwards of thirty years since this error crept into our books on British plants, I should think it quite time for it to be corrected: there is no doubt of its being a species of *Hieracium*, and a plant which is not described by any writer on British Botany. It may be described by continental botanists, and if it be, the name I have given to it will of course have to be given up, and the one adopted which had been given to it before. The enclosed specimen is one of its most common forms: you will observe it is two-flowered; it is rarely found with one flower. At the first glance the plant has certainly a great resemblance to *Hypochæris maculata*, but when subjected to a more minute examination it will be seen not to belong to that genus.—*Saml. Gibson; Hebden Bridge, September 5, 1843.*

368. *Note on Plants apparently indigenous.* Since Sir William Jackson Hooker tells us (in the fifth edition of his 'British Flora,' Introduction, page viii.) that the "*Martagon Lily* and the *American Touch-me-not* can have no claim to be considered British plants," I would just ask Sir William seeing he has in that edition of 'British Flora,' inserted the ITALIAN RYE-GRASS without the asterisk to denote its being naturalized, or any of your readers, what claim that plant can have to a place in our Flora, since it has not yet gone beyond the bounds of cultivation, and it is but a very short time since it was brought to this country? If I had found the *Mimulus luteus* on our list, I should not have been half so much surprised as I was to find that the *Italian Rye-Grass* had found its way into our Flora, for indeed the *Mimulus luteus* has often been found where it might have been considered truly wild, had we not known from whence it came. The following is an extract from a letter which I received from Mr. John Gilbertson, of Preston, dated September 2, 1843. "Perhaps you will be kind enough to inform me whether the monkey-plant, so much cultivated in our gardens, is a native of this country, at least if it is known to be so? I had the pleasure of finding it in great abundance a few weeks ago." We might mention a great many plants which has quite as much claim to a place in our Flora as the above *Lolium* can have.—*Id.*

369. *Note on Cystopteris regia and C. alpina.* At page 712 of

'The Phytologist,' I find the following question — "Are the plants published under the name of *C. regia* and *C. alpina*, in the Lancashire fern list (Phytol. 477), identical with the Layton plants?" In reply to this question, I would say that our plants, so far as my observations have gone, are referrible to one species: if I were to consider them more than one species, the *C. regia* of Smith and the Layton plant would not be the same, nor would either of them be the true *C. alpina*: the *C. regia* of Smith and the Layton plant are as distinct as any two forms I have seen. I cannot at present give your correspondent any particulars concerning my *Cystopteris*, as most of them are now in the hands of Mr. Newman; but if looked over there will be found a few specimens of the *Layton plant*, and one of Sir James Edward Smith's *C. regia*, *which is from his own hands*, and likewise a specimen of the *Snowdon plant*, which is from one of the parties mentioned by Smith; and I think that if Mr. Newman looks over my *Cystopteris* (those from Broadbank and Cliviger) he will find amongst them plants that are not very unlike Smith's *C. regia*, and others which are somewhat like the Layton plant, and perhaps a few others which are quite as distinct as any of the forms pointed out by Smith and others.—*Id.*

370. *Note on Vaucheria terrestris, Protonema muscicola, &c.* Having observed the *Vaucheria terrestris*, DC., to be almost constantly accompanied by the young state of some moss — probably *Tortula unguiculata*—I am inclined to think that this Alga is merely a young state of the moss, previous to the development of the stem and leaves. This is confirmed by a remark of Hooker, in his fifth vol. of the 'English Flora,' who says that *Byssus velutina*, L., must be excluded from the list of cryptogamic plants, as it has been observed to be a young state of one of the *Polytricha*. This *Byssus velutina* is quoted by Vaucher, in his work on *Confervæ*, as a synonyme of his *Ectosperma terrestris*, and this again is a synonyme of *Vaucheria terrestris*. This would seem to prove that the genus *Vaucheria* is nothing more than a rudimentary state of various mosses. Hedwig states that the sporules of mosses, in germinating, produce ramified, cylindrical, primordial leaves, of indeterminate number, and that these leaves are more permanent in *Phascum serratum*, &c., than in most mosses. But the various species of *Vaucheria* are said to bear fruit, and that they are reproduced by the ovoid vesicles observed in their ramifications. I do not think there will be any great difficulty in explaining this away, for we observe many cryptogamic plants which, when partially developed, put on a totally different appearance

from that of their full development, which only takes place under favorable circumstances, and yet these partially developed states have a power of reproduction. I imagine then that the *Vaucherias* are the rudimentary states of the mosses, and that the ovoid vesicles are analogous to granules, and reproduce the primordial state of the moss, which only develops perfect leaves and fruit under favorable circumstances. Again, I have never found *Protonema muscicola*, which is common on old stumps, unaccompanied by a *Jungermannia*; and I have thought, from careful examination, that I could detect a connexion of the filaments, of which this Alga consists, within the base of the stem of the *Jungermannia*: if so, this *Protonema* will be the analogue of *Vaucheria* among mosses. *Protonema cryptarum* is suspected by Agardh to be the young state of a *Phascum*. There is a curious species which grows on the stems of *Orthotrichi*,—*P. Orthotrichi*. I suspect this to consist of aërial roots of the moss, which are sometimes much more produced than at others. I should like to have the opinions of more experienced cryptogamic botanists than myself on these points. Before I close this note I would wish to remark that *Thelephora cærulea*, *Schrad.*, among the Fungi, and *Mycinema phosphoreum*, *Ag.*, among the Algæ, of Hooker's 'English Flora,' are the same plant, and are both referred to *Auricularia phosphorea*, Sow. Fung. III. t. 350.—*Ph. B. Ayres; Thame, September 7, 1843.*

371. *Short Account of an Excursion to Tilgate Forest and the West Hoathly Rocks.* On Monday, August 21st, 1843, accompanied by three botanical friends, I made an excursion to the rocks at West Hoathly, and from thence to Tilgate Forest, starting from the Three Bridges station on the Brighton railway: our attention was first attracted to a large pool, by the side of the railway, and near the station, and although so recently excavated, it furnished us with many plants of interest; among them were *Centunculus minimus*, *Erythræa pulchella*, *Scirpus setaceus*, *Juncus lampocarpus*, *Typha latifolia*, *Alisma Plantago*, with several other aquatic plants: a short distance up the lane towards Worth, and near the pool, we collected *Hypericum Androsæmum*, *Blechnum boreale*, *Aspidium spinulosum*, *Rubus Koëhleri* and *R. macrophyllus*. We then proceeded to Turner's hill, distant about three miles: the lane through which we passed was very sandy; the common hedge-plants here were *Erythræa Centaurea*, *Solidago Virgaurea*, *Aspidium Filix-mas*, *Calluna vulgaris*, *Erica cinerea*, &c. On the left hand bank, near Turner's Hill Gate, some very fine specimens of *Asplenium Trichomanes* were collected. The rocks, which are about one mile from this spot (direct south),

are situate in a wood on the left hand side of the road, and form almost a semicircle, terminating very abruptly, and being conspicuous objects wherever they are freed from the thick underwood: upon these rocks flourishes, in great luxuriance, the beautiful *Hymenophyllum Tunbridgense*, covering, in some instances, the entire face of the rock, but growing most vigorously in the crevices where the sun never penetrates. After enjoying the delightful view from the summit of the highest rocks, where we observed *Vaccinium Myrtillus* and *Convallaria majalis*, in large patches, but not in flower, we turned our steps towards Tilgate Forest. On reaching Turner's Hill Gate, we took the left-hand road, which, after about three miles' ride, and finding *Linum angustifolium* in great plenty on a bank in the lane, brought us to "Starve-Mouse Plain," a swamp lying between Pease Pottage and the Brighton railway, where we commenced our researches, *Exacum filiforme* being the chief attraction, which we soon found, growing in the greatest profusion and of extraordinary size, some specimens measuring five inches in height and much branched: we also collected *Lycopodium Selago*, *inundatum* and *clavatum*, *Narthecium ossifragum*, *Eleocharis multicaulis*, *Hypericum elodes* and *humifusum*, *Scutellaria minor*, *Radiola Millegrana*, *Melica cærulea*, *Erica Tetralix* with white flowers, and the elegant *Campanula hederacea*, which abounds in this locality. We then returned home, well pleased with our day's excursion and success, and not without the hope of revisiting the same spot another year, when we trust that others of our friends will join us, and participate in the enjoyment of such a delightful ramble.—*W. Hanson; Reigate, September 7, 1843.*

372. *Note on Lastræa spinulosa.* You are quite correct in what you say (Phytol. 719) that *Aspidium spinulosum* of 'English Botany' is only a young weak state of *dilatatum*: Mr. Mackay, who supplied the very specimen there figured, assured me so years ago.—*W. T. Bree,* Allesley Rectory, September 7, 1843.*

373. *Another word on Lastræa spinulosa.* I hasten to correct an error in my former communication (Phytol. 719), wherein I expressed a belief that *linearis* is "the only distinguishing epithet the plant has ever received." I have since found that Roth was well acquainted with our plant, and described it very carefully under the name of *Polystichum spinosum*: our *Lastræa dilatata* is also most elaborately described as *Polystichum multiflorum* of the same author: the nomenclature of the species will therefore require careful investigation.

* In a letter to E. Newman.

The names *dilatata* and *spinulosa* are apparently synonymous, and both apply to a small group of species rather than to a single one. — *Edward Newman; Peckham, September 8, 1843.*

374. *Mr. Gibson's query on Carex distans.* As no one has yet given a reply, I beg to make some remarks, in order that a question which the editor has thought worth insertion (*Phytol.* 680) may not be altogether barren and unprofitable. It certainly was not to be expected that a botanist who, by his frequent contributions to this journal, would be regarded as an adept in Carices, should find himself at fault in reference to the subject of his enquiry. Perhaps the fact of his not having yet received an answer may be regarded by some as a proof of the great obscurity of the passage alluded to; I, however, have formed a different conclusion. Whenever the honest desire to acquire useful knowledge is the motive for putting a question, and then only, I think it the duty of every one who is able to do it to furnish the desired information. The querist, however, should endeavour to ask those who are most likely to afford it. In this case, I think the person who has remodelled the specific characters of *C. distans* and the allied species, in the 'British Flora,' is most competent to clear up the difficulty. If Mr. Gibson cannot do it himself, and if he will assure me in the next *Phytologist* that *he does not know the meaning of the writer in the passage alluded to*, I will undertake to procure the desired information for him from the fountain head. Of course my own conjectures on the subject, were I to express them, would be open to further question; and remembering what Seneca says, "Many would attain knowledge if they did not fancy that they already had it," I shall make no pretensions to superior skill in a matter which seems so dark and difficult to the enquirer.—*W. Wilson; September 8, 1843.*

375. *Note on Lathyrus Aphaca and other Plants in the vicinity of Halstead, Essex.* The rare and curious *Lathyrus Aphaca* occurs in several places in this immediate neighbourhood. I have lately noticed it in what I imagine to be an unusual situation, viz. near the edge of a pool in an old marl-pit, where it appeared to thrive remarkably well, and is now ripening its seeds copiously. A short distance from the same spot *L. Nissolia* occurs, and is by no means an uncommon plant here, confining itself however entirely to calcareous soils, and associating with such plants as *Trifolium ochroleucum* and *Senecio tenuifolius*. As interesting plants of this locality, in addition to the above, I may mention the following as having come under my own observation: — *Ranunculus hirsutus* and *parviflorus*, *Thlaspi ar-*

vensc, Cardamine amara, Dianthus Armeria, Hypericum Androsæmum, Epilobium roseum, Myriophyllum verticillatum, Sedum dasyphyllum, Chrysosplenium alternifolium, Tragopogon porrifolius, Anthemis arvensis, Linaria spuria, Veronica scutellata and Buxbaumii, Ophrys apifera, Carex vesicaria, and Alopecurus fulvus. — *Thomas Bentall; Halstead, Essex, September 8, 1843.*

376. *Localities for Villarsia Nymphæoides.* This rare plant, confined to a few spots of our island, occurs pretty abundantly in the river Thames, in the neighbourhood of Hampton Court and Hampton, Middlesex. The first locality that I shall mention is at the entrance to the village of Sunbury, where the river is open to the road between that place and Hampton. It occurs again in another spot, a field or two lower down the river; and a third time near Hampton Court, where the river is open to the Hampton road. A fourth locality is a little above Kingston Bridge. All of them are on the Middlesex side of the Thames, and the plant, especially in the first three, covers a considerable surface of the water. The locality above Kingston bridge I have been acquainted with since the autumn of 1837; the others I discovered a few days since. I have not had an opportunity of verifying the locality at Walton, as mentioned in Smith's 'English Flora.'—*Jas. E. Moxon; Twickenham, September 11, 1843.*

377. *Note on the Habits and mode of Growth of Villarsia Nymphæoides, in the above localities.* The main root of the plant seems to be firmly fixed in the muddy bottom of the river, from whence it sends out numerous creeping stems of considerable length, from which arise the floating leaves, placed singly at considerable intervals, and furnished with a tuft of radicles at their point of junction. When fully developed they are slightly sinuated, and wavy at their margins. The flower stems, placed at irregular intervals along the creeping stem above-mentioned, are from one to three feet long, mostly destitute of leaves, excepting at the top, where they are collected into a kind of tuft, from which arise the flower buds in considerable numbers. The flowers, which float just above the surface of the water, are extremely fugacious, the petals being thin and delicate, and only opening fully in the sunshine. The plant, in all these localities, grows in quiet nooks of the river, where it floats, undisturbed by the current, and sheltered from the wind.—*Id.*

378. *Note on Equisetum umbrosum.* As I read your article on Equisetum umbrosum (*E. Drummondii* of British botanists) a few evenings since, within little more than a hundred yards of where the species grows, I resolved by the next post to send you some fresh-

gathered specimens: this was done, and I hope they reached you in safety. They are from the locality (Wolf-hill) in which the plant was first found in Ireland, by Mr. Thomas Drummond, for in this country, as well as in Scotland, he was the first botanist to notice it. This he did when spending a day with me in botanizing the Belfast mountains, at the time that he was curator of our botanic garden. For the better understanding of this interesting and little known species, I would suggest, if such be not already your intention, that another figure be given in 'The Phytologist.' The figures already published are very good, but the greater number of readers will, I apprehend, judging from *them only*, carry away the impression that the *E. umbrosum* is a sparingly branched species compared with *E. sylvaticum*, represented in a preceding page of 'The Phytologist, whereas, on the contrary, its foliage is still more dense and drooping. True, in your description of the barren stem, something like this is stated, but your figure, though admirably representing the plant when it begins to shoot in spring, gives no idea of it in its matured state. On the steep banks of a mountain-stream, about a mile southward of the similar locality at Wolf-hill, I this summer remarked a few plants of *E. umbrosum*. In both places the plant grows almost exclusively on the side of the glen facing the north. The first English name applied to this species — the blunt-topped — is expressive, as distinguishing it from the comparatively spiral *E. sylvaticum*, the only British *Equisetum* to which it seems to me to bear even a general resemblance. — *Wm. Thompson; Donegal Square, Belfast, September 10, 1843.*

379. *Note on Osmunda regalis, near Swansea, Glamorganshire.* I may just adduce, as illustrating the changes caused by cultivation, and showing that even within the bounds of a garden, plants may yet continue *wild in their prison* till they are semi-domesticated, and that therefore the *vicinity*, even if a garden, may not be *always* good ground for doubt that a plant is indigenous there, — the fact of *Osmunda regalis now growing* within a nursery garden at Cwm Gwynne, about a mile and a half from Swansea, towards Gower. I went, in company with my friend Mr. James Buckman, of Cheltenham, to see a nursery garden, some acres in extent, at Cwm Gwynne, which had been enclosed from the waste about five years, and is now in a high state of cultivation, with all the usual stock of a nurseryman and market gardener. It was remarked to us by the lessee of the ground, that there was a boggy spot in the centre of the nursery, probably the best land, but which he had not yet brought under the spade. Happening to cross this place in our peregrinations, I thought I saw a variety

of *Lastræa Filix-mas*, not so common as many other ferns hereabouts, but when on the point of gathering it, to our surprise it proved to be the barren frond of *Osmunda regalis*. In the same boggy ground we noticed *Pedicularis palustris*, *Viola palustris*, &c. Now, of course, the existence of the *Osmunda* here will depend upon the piece of boggy ground being drained or not. Should it be neglected, as is not improbable, there being abundance of ground, the *Osmunda* and other bog-plants may remain for half a century, surrounded by cabbages, kidney-beans and onions. I should say that the fronds of *Osmunda* were all barren.—*Edwin Lees ; Ilfracombe, September 12, 1843.*

ART. CLXXII.—*Proceedings of Societies.*

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Cork, Thursday, August 17, 1843. Section B.—Chemistry and Mineralogy. ‘On the Influence of Light on the Growth of Plants,’ by Mr. R. Hunt.—The peculiar influence exerted upon the germination of seeds and the growth of the young plants by coloured light, has been for some years the subject of the author’s investigations. The results show the surprising powers exerted by the more luminous rays in preventing germination, and in destroying the healthful vigour of the young plant. Plants, when made to grow under the influence of the red rays, bend from the light as something to be avoided; while the blue or chemical rays are efficacious in quickening the growth of plants. Since the publication of the last Report, the author has tried plants of a great variety of kinds, and the same effects have been produced. It has, however, been found, that although blue light accelerates germination, and gives a healthful vigour to the young plant, its stimulating influences are too great to ensure a perfect growth. The strength of the plant appears to be expended in the production of a beautiful deep green foliage; and it is only by checking this tendency, by the substitution of a yellow for a blue light, that the plant can be brought into its flowering and seeding state. The etiolating influence of the green rays was observed upon, as well as the power which plants possessed of sending out shoots of a great length in search of that light which is essential to their vigour.

Section D.—Zoology and Botany. Dr. Lankester read a paper from Mr. Robert Milliken, on a supposed anomaly in the fructification of the violet.

Mr. Babington said that the author of the paper had described the appearances correctly, but had come to a wrong conclusion. The fact was, that in *Viola* some flowers were later than others in appearing, and that the later ones were generally imperfect, not having any corolla. The later flowers appearing without petals had misled Mr. Milliken to the supposition that these produced their fruit as the result of the flowering of the first flowers. Prof. E. Forbes stated that the absence of petals was a permanent state of some of the species of violet.

Mr. Mackay exhibited specimens of the Irish *Saxifrages*. He called attention to the species resembling the London Pride (*Saxifraga umbrosa*), and with the specimens of the species he also exhibited several varieties of *S. Geum*, *S. hirsuta*, *S. h. polita*, &c. Mr. Babington remarked that *Saxifraga* was a difficult genus to study. There were many specimens on the table, which, if they came from different countries, would

be naturally described as species, but which, as they were all gathered in Ireland, he had no hesitation in calling varieties. It was no proof that a plant was a species because it remained the same in cultivation for a great length of time, for many varieties did that. He had paid great attention to the Saxifrages, and of those belonging to the London Pride tribe, he believed that only *S. umbrosa*, *elegans*, *Geum*, and *hirsuta*, were species. The variety, *S. u.* of Mr. Mackay, was not the London Pride of the English gardens, which was identical with the London Pride of the Pyrenees. Prof. Forbes said, that the difference between botanists, with regard to species and varieties, could only be reconciled by ascertaining from each writer an estimate of the value he attached to particular characters. For the want of this there was much confusion even in Botany, but the evil was much greater in Zoology. The vague manner in which the characters of animals were drawn up by British zoologists, was a constant cause of complaint among continental naturalists.

The Rev. W. Hincks then called attention to two living specimens of *Neottia gemmipara* of Smith. This very rare plant had been discovered by Mr. J. Drummond in a salt marsh near Castleton, Bearhaven, in the county of Cork, in 1810. From an imperfect specimen, Sir J. E. Smith had described and figured it, and it had not been seen again till 1841, when it was re-found by Dr. Sharkey. Only one specimen was again obtained, and it was with difficulty identified with the original specimen in the Linnean Herbarium in London. Dr. Wood and Dr. Harvey had, during the past week, both gathered living specimens, which were now on the table. The original plant was not a *Neottia*, as had been supposed by Smith, but was now referred to *Spiranthes*. Mr. Babington stated, that he had carefully examined the plant on the table, and believed that it was a genuine *Spiranthes*. It was a matter of great interest, as probably this plant was one of the rarest in the world. There was no record of its having been found anywhere but in the locality from whence these specimens were brought. Mr. Hincks stated, that among some Californian plants received in London, had been found what appeared to be a *Spiranthes gemmipara*.

Dr. Allman exhibited specimens of a *Linaria* which he had gathered in Ireland. He believed it to be a new species, and had described it at a meeting of the Royal Irish Academy. It had been supposed to be the *Linaria Italica* of Treviranus, which had also been found in England, but this plant differed in many respects from *L. Italica*. Mr. Babington thought the plant of Dr. Allman differed from the English *L. Italica*. Should this *Linaria* be a new species, it will probably be new to the European Flora. Dr. Allman stated that botanists in London had pronounced his plant a hybrid, and Mr. Mackay concurred in this opinion. Dr. Allman then exhibited specimens of the very rare *Trichomanes speciosum*, and also of one discovered by Mr. Andrews of Dublin, which differed from it in many points, and which might probably turn out a new species. The principal features of difference that this fern presented were, the possession of bipinnate fronds, long bristles, and the triangular form of its fronds: in all these points it differed from *T. speciosum*. Mr. Mackay had cultivated the plant in question since Mr. Andrews discovered it, and it was his conviction that it was a new species.

Friday, August 18. Section E.—Medical Science. Dr. Pickells read a paper ‘On the deleterious effects of *Ceanothe Crocata*.’ — This plant, he observed, was known to be one of the [most] virulent poisons of the indigenous British Flora, but was stated to be very rare in Great Britain by Dr. Smith, in the letter-press of Sowerby’s ‘English Botany;’ this was by no means true as regarded Ireland, particularly in Cork,

and other southern counties, in which it grows in great abundance. Dr. Pickells collected nearly thirty cases of death by eating the root, the quantity in one instance not exceeding "the top of the finger;" he described the symptoms as exhibited in those cases,—insensibility, convulsions, locked jaw, delirium and insanity; and pointed out the proper mode of treating such cases, by detailing several which were cured by the exhibition of strong emetics, diffusible stimulants, enemata, &c. He concluded by making some observations on the poisons used by the ancients in judicial executions; he thought this might have been the plant used to destroy Socrates, and not the *Conium maculatum* of modern Botany; and from the symptom of insanity, he thought that this was the plant designated as the "insane root" by the poet. This plant Dr. Pickells stated to be equally injurious to black cattle and horses, as to man; he believed there was no direct antidote known; melted butter was given in some of the cases which recovered, and is popularly deemed a preservative against its effects. The root is frequently used as a discutient external application to tumours, and many of the accidents have occurred by eating it, when gathered for this purpose.—*From the Report in the Athenæum of Saturday, August 26, 1843.*

BOTANICAL SOCIETY OF LONDON.

September 1, 1843. — J. E. Gray, Esq., F.R.S. &c., in the chair. Dr. Wood, of Cork, presented a specimen of *Neottia gemmipara*, found in Ireland; * and British plants had been received from Mr. E. Doubleday, the Rev. A. Bloxam and Miss Worsley. Dr. Thomas Taylor presented the following four species of *Jungermannia*, new to the British Flora:—*Jungermannia reclusa*, (*Taylor, MS.*), *J. germana* (*Taylor, MS.*), *J. fragilifolia* (*Taylor, MS.*), and *J. riparia* (*Taylor, MS.*)

Read,—“Observations on some Varieties of *Hypna*, and on a new species of *Lichen*,” by Dr. Thomas Taylor. Local collections of Cryptogamic plants are instructive in two ways, by contributing to our knowledge of the geographical distribution of the species, and by pointing out the directions which the characters of the varieties take when acted on by diversity of circumstances of external agencies. The cryptogamic collection of Dr. G. Watson, from the vicinity of Philadelphia, presented to the Botanical Society of London, elucidate in some particulars the foregoing remark; not however to a great extent, as the collector seems to have satisfied himself with gathering the largest and most prominent species, and to have omitted or overlooked the minuter and more inconspicuous kinds. Yet what has been collected is far from being destitute of interest and value.

Thus he has remitted to London a great profusion of *Neckera cladorrhizans* (*Hed.*) Now this moss was first described from Swiss specimens by Hedwig; afterwards it was sent to this country from Nepal by Dr. Wallich, and from New York by Dr. Torrey; finally we have it in the present collection from Philadelphia.

In Great Britain or Ireland, so fertile in mosses, it is totally unknown. We may therefore conclude that this species is altogether continental; although for the present we are unacquainted with those laws that deny to it an insular locality.

We have *Hypnum salebrosum* (*Hoffm.*) by its smaller size imposing upon us the form of a new species; but although the branches are more compressed and shorter,

* See p. 750.

the leaves somewhat narrower, the pedicels more slender, and the capsules soon turning black, yet in all essential characters it entirely agrees with our British species.

Hypnum plumosum, (L.), with us assumes diversified forms, among which a remarkable one collected by the late Miss Hutchins, at Glengariff, has all the leaves decidedly secund. The variety gathered by Dr. Watson, has the upper leaves alone heteromallous; but then its more erect and longer capsules, and the less concave but substriated leaves, claim the adjustment of the balance between species and variety by a practised hand. Dr. Taylor considered it less hazardous for the present, to leave it in the latter rank. But the impatient may say, when then are we to expect the means of exactly deciding? The answer is, perhaps not until some muscologist enjoys the privilege of seeing both growing in their native localities. For there is much value in the character taken from the habit of a plant. Many modern elevations of varieties to the rank of species have been first suggested by the silent appeal of the look of the growing individuals. In Dr. Watson's state of *Hypnum rutabulum* (L.), a mark hitherto considered essential to the species seems to be vanishing; the pedicels exhibit scarcely any appearance of roughness immediately below the capsules: in all other particulars the Philadelphian and European mosses coincide. But Mr. Wilson, whose observations on this tribe are always as original as acute, had long since taught Dr. T. that the scabrous state of the pedicel in this species is liable to great variation; inasmuch that he seems disposed to doubt whether *Hypnum vagans* of Hooker, in Drummond's 'Musci Americana,' separated principally on account of the smoothness of the fruitstalks, be really distinct from *Hypnum rutabulum*, (L.)

Among the very few lichens sent by Dr. Watson, is a species of *Cænomyce*, which may be considered new, and is called *Cænomyce foliacea*. Its specific character may be thus given.—“*Podetia* two inches high, loosely caespitose, dichotomously branched, the ultimate branches subulate, and tipped with brown; the buds in flattened granular pale green elevations of the cuticle, soon expanding into flat lobes, which are subpinnately branched and crenate, pale glaucous above, snow-white beneath, unaltered by moisture. There are no apothecia present.”

The generic name is that of *Acharius*, which perhaps should not be abandoned but upon the clearest necessity. The modern subdivision of the genus into *Cladonia* and *Scyphophorus* appears attended with no advantage, while the species of these two tribes are, by the confession of the adopters themselves, joined by links that appear inseparable from either set. Indeed, on this question, the present plant is quite in point, having all the habit of *Cænomyce Sparassa* (*Ach.*), (*Scyphophorus* of *Fée* and *DeCand.*), with the attenuated and subulate branches of *Cladonia* of the same authors.

The buds of lichens have not received the consideration from botanists which their importance merits. Hitherto the characters have been drawn from the thallus or from the apothecia alone: but the buds by which, for the most part, these plants are multiplied, and which, if watched during development, present most remarkable features, should be hailed as a new and welcome element for specific distinctions.

In *Cænomyce Sparassa* (*Ach.*) the buds originate in coarse white granules, thickly set, and rising at once above the surface of the *podetia*; in our plant they are flat, scarcely eminent above the cuticle of the *podetia*, pale glaucous green from the beginning, and not so densely crowded, nor do they expand into lobes so linear. Another character may be taken from the branches of the *podetia*, which in the former are nearly parallel and of equal thickness, except at the very summit, while in *Cænomyce foliacea* they are more gradually acuminate and divaricated above.—*G. E. D.*

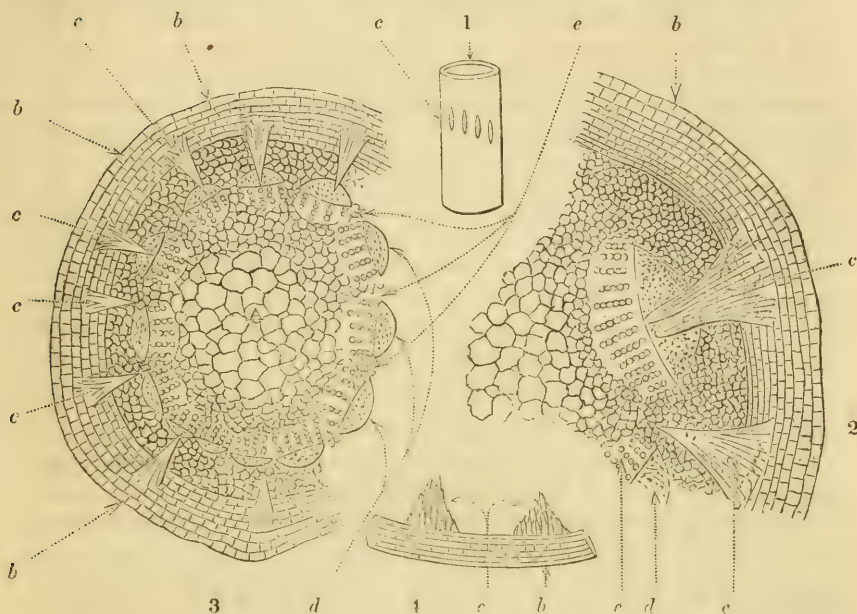
THE PHYTOLOGIST.

No. XXX.

NOVEMBER, MDCCCXLIII.

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ART. CLXXIII.—*Notes on the new British Cuscuta* (*C. Epithymum* β . *Trifolii*, *Bab.*) By DANIEL WHEELER, Esq., M.R.C.S.L.



Magnified figures to show the connexion between the Cuscuta and the clover.

Fig. 1.—*a*, portion of clover-stem enlarged. *c*, the apertures by which the Cuscuta penetrated.

Fig. 2.—A highly magnified representation of a very thin transverse section of a portion of the stem of clover, with the Cuscuta attached. *b*, Stem of the Cuscuta. *c*, Spongioles of Cuscuta penetrating the clover-stem; that on the right having a bifid extremity reaches the medullary sheath, that on the left merely enters the cellular tissue. *d*, Bundles of woody fibre. *e*, Medullary sheath.

Fig. 3.—A less magnified representation of a transverse section of a clover-stem, with dodder attached to it. A portion is left unfinished, that the relation of parts may be shown more distinctly. The letters apply to the same parts as in fig. 2.

Fig. 4.—A portion of dodder-stem which has not yet attached itself to clover, magnified to show the shape and cellular structure of the teeth-like processes [spongioles].

HAVING heard from my friend Mr. Hanson, that the new Cuscuta was growing upon clover in this neighbourhood, I visited the field, and found several patches of it, varying from a few feet to between two and three yards in diameter. Its general appearance cannot be better described than in the words of Professor Henslow. It looks

like "fine closely-tangled wet cat-gut carelessly thrown down on the clover;" it is of a pale reddish-brown or yellow colour, of a more robust habit than *Cuscuta Epithymum*, but not so strong as *C. europæa* and with fewer heads of flowers; these are bracteated, sessile, white, with a spreading limb to the corolla, and give out a faint, fragrant odour; the stems upon which they are placed are frequently long, round and filiform, occasionally giving off lateral branches, the axils of which contain a few flower-buds, these ultimately increase and form heads.

The destruction caused by this plant is very great. All the plants around which it clings are dead or dying; pieces of clover, quite black and withered, as if scorched, may be obtained with the *Cuscuta* upon them in a flourishing condition. It does not confine itself to clover, but seems to attack indiscriminately all the plants in its neighbourhood. I have found it upon *Prunella vulgaris*, *Triticum repens*, *Polygonum aviculare*, *Plantago lanceolata*, *Sherardia arvensis*, and even on *Orobanche minor*, thus affording an example of one parasite living upon another. It seems especially to luxuriate upon *Prunella vulgaris*; at least I have generally found several heads of flowers on that, when there have been scarcely any on the other plants, or on the clover in its neighbourhood, completely strangled by the Dodder.

The characters, drawn from the examination of numerous specimens, appear to me to be the following:—

Clusters of flowers bracteated, sessile, approaching a globular form, the flowers in each cluster varying in number from two to twenty, the average number being about fifteen: tube of the corolla *at first cylindrical, afterwards becoming somewhat ventricose*, scales palmately cut, converging: calyx *nearly or quite as long as the tube of the corolla*, sepals *white*,* ovate-lanceolate, acute.

Being a true parasite, the *Cuscuta* derives its nourishment from the plants to which it clings, as soon as it has inserted its suckers; and the mode in which this is accomplished is very interesting. The stem has a degree of viscidinity readily detected by plunging the hand among a quantity of it; on withdrawing the hand, it will be found that the stems have a tendency to adhere to it, and probably it is this viscidinity which at first enables the *Cuscuta* to attach itself to the clover &c., until it has twined itself round the stem of other plants; this it does by coiling itself round once or twice from left to right, or more frequently it makes several turns and then passes off to another stem,

* Occasionally tinged with purple.—*Ed.*

or to a leaf, for I have seen it send its suckers into the leaves of *Triticum repens* and *Plantago lanceolata*, as well as those of the clover. If we tear a small piece of the *Cuscuta* from off the stem of the clover to which it has attached itself, we shall observe some elliptical openings through which the teeth or processes [spongioles] of the *Cuscuta* have penetrated the structure of the plant, as in fig. 1, *c*. If we make an exceedingly thin transverse section of the clover (fig. 2), with the dodder (*b*) upon it, and place it under the microscope, we shall then observe the dodder sending wedge-shaped processes (*c* in figs. 2, 3, and 4) into the stem of the clover; these processes sometimes penetrate through the layer of woody fibre (*d*) to the medullary sheath (*e*), at other times they can only be traced into the woody fibre, and very often they only enter the cellular tissue. If we examine the long, unattached portions of the stem of the *Cuscuta*, we may see some of the wedge-shaped processes which have not penetrated any plant; these consist of a number of oblong cells, arranged in the wedge form, their long axis being placed at right angles to that of the dodder, and uncovered by cuticle; they are therefore admirably adapted both to penetrate and to absorb nourishment from the plants they attack.

I think it probable that the *Cuscuta* is chiefly nourished by the descending or elaborated sap, having met with many specimens of clover which were more withered below than above; if such be the case, the tight embrace of the dodder would act like a ligature, and thus, by retarding the flow of the descending sap, enable the dodder to obtain a greater supply of nourishment.

I believe there is little doubt that the clover from which I obtained my specimens was raised from foreign seed, therefore there is every probability that the *Cuscuta* was imported: it is most probably the plant alluded to by Mr. Babington in his 'Manual,' as the var. *β. Trifolii* of *Cuscuta Epithymum*.

DANIEL WHEELER.

Reigate, September 22, 1843.

[Mr. Wheeler's interesting paper was accompanied by recent specimens of the *Cuscuta*; these are identical with others previously received from Mr. G. S. Gibson, of Saffron Walden, who last year favoured us with a notice of the appearance of this destructive parasite in that neighbourhood, (*Phytol.* 466). Mr. Gibson has since obligingly forwarded recent specimens: the note which accompanied them will be found among our Varieties. During the past summer a *Cuscuta*, with a very slender, white stem, made its appearance on young plants of a *Cytisus*, in the propagating-house of a Nurseryman and Florist, at St. John's Wood: the species could not be ascertained, as the parasite did not flower, but perished after destroying the *Cytisus*. The following account of the habits and economy of these singular plants, we quote from a provincial paper.—*Ed.*]

" *New Agricultural Pest.*—Professor Henslow last week called attention to the silent but dangerous progress that is making by a new agricultural pest, the clover dodder, which threatens to destroy the clover crop altogether in some places.

" The dodders are a singular race of true parasites, inhabiting all the temperate and warmer parts of the globe, distinguished by botanists into numerous species, but all having the same manner of growth and multiplication. They are leafless annual plants, allied to the bindweeds [*Convolvulaceæ*], and, like them, strangling whatever they lay hold of. Their flowers, which are small, appear in balls on the stems, speedily form fruit, and end in producing each four seeds, about the size of a grain of mustard, within which is coiled up an embryo plant, looking like a miniature snake. As the number of flowers in each ball is, in our common species, on an average, about fifteen, it follows that every ball will furnish about sixty young plants—whence the rapid spread of such pests may be easily understood.

" As soon as the seed of the Dodder is ripe, it falls to the ground, and usually seems to lie dormant till the succeeding year; sometimes, however, it is said to germinate immediately. When the spring returns, the embryo sends one end down into the earth to form a root, while the other rises upwards, like a small white thread or worm. At this time it is not a parasite, but seems to derive its food from the soil, like ordinary plants. It cannot, however, do so long, but withers and perishes, unless it touches some living branch or stem. If it succeed in doing so, it immediately seizes the live stem by means of a sucker, which is protruded from the point of contact; and then, twining from left to right, and forming more suckers as it twines, it establishes itself on its victim, and ceases to have any further connexion with the soil. From that time forward it is a true parasite, feeding on the juices of the plant it has seized upon. After making a few turns round the branch, and securing itself firmly in its new position, it again lengthens, and catches hold of some other branch, when more suckers are protruded; and thus it goes on—branching, and twining, and sucking, and branching again—until it forms that appearance which Prof. Henslow well describes as resembling 'fine, closely-entangled, wet catgut.' Now the dodder has a new and independent seat of life wherever it has twined round a branch; and as it is incessantly twining and separating, and twining again, a single plant is speedily in the condition of a polype—so that if it be cut into a thousand pieces, each piece will immediately go on growing, as if nothing had happened to it. Tearing the dodder in pieces then, so far from extirpating it, only multiplies the mischief, instead of arresting it.

" This short statement will show that it is a formidable enemy that has thus been unfortunately introduced to our fields; and, as these things are not very nice in their food, it is not impossible that the clover dodder may next take a fancy to our wheat-fields, unless we can speedily put an end to its presence. It is of little use to cut it in pieces—it is of no use whatever to do so, if the fragments are left where they can catch hold of anything else.

" As it is only an annual, it would be killed if we could prevent its flowering; but that is difficult, because of its hiding itself among the lower branches of plants, where it cannot be seen: and a few heads of flowers will soon renew it in a succeeding year. The right plan would be to dig up the clover where the dodder appears, so as to form a circle considerably beyond the patch apparently formed by it, and then to burn it in heaps; or, in cases where the entire field is infected by it, to sacrifice the whole crop, and burn it. This may appear a violent remedy, but it is the only one likely to be effectual; and even this will fail, if (which is not yet the case, but soon will be) the dod-

der is allowed to form its seeds: for they will fall on the ground, lie hid in the crevices, and reappear with the next crop, — when all the labour will have to be done over again.” — *The Ten Towns' Messenger, and General Advertiser: Saturday, September 23, 1843.*

ART. CLXXIV. — *Rarer Plants observed at Weston-super-Mare.*

By G. S. GIBSON, Esq.

I SEND a list of some of the rarer plants noticed at Weston-super-Mare, during a day's visit to that place in the summer of 1843.

Weston is a small but increasing bathing-place, pleasantly situated on the Bristol Channel, about eighteen miles from that city; and possessing considerable diversity of soil and situation, is a locality favourable to the growth of a variety of plants, some of which are peculiar to the vicinity of the sea, and others to hilly or woody districts. Doubtless, in a longer stay, this list might have been considerably enlarged.

Clematis Vitalba. Hedges.

Papaver Argemone. Cornfields at Uphill.

—— *somniferum.* Waste ground.

Glaucium luteum. On the shore.

Cakile maritima. Sandy shore.

Erysimum cheiranthoides. Waste ground.

Koniga maritima. Ditto.

Reseda alba. Several places upon waste ground, naturalized, but not really wild, and common in gardens.

Helianthemum vulgare, (with white flowers). On the cliff.

Silene maritima. Sandy shore and cliffs.

Arenaria peploides. Sandy shore.

—— *marina.* Cliffs.

Hypericum montanum. On the hills.

—— *Androsæmum.* Sparingly on the cliffs.

Trifolium scabrum. Cornfields and dry banks, common.

Pyrus Aria. Rocks on the hills.

Apium graveolens. Ditches.

Trinia glaberrima. Downs near the signal-post, and at Uphill, near the church.

Petroselinum segetum. Uphill church-yard.

Helosciadium repens. Marshy ground near the railway.

Fœniculum vulgare. Waste ground.

Eryngium maritimum. Sandy shore.

—— *campestre.* Sparingly by the side of a cornfield, by a private road leading up to a house beyond the church: there were only about ten plants. It is, I suppose, a hitherto unobserved locality for this very rare plant, and as such may be interesting to some of your readers.

Rubia peregrina. On the cliffs.

Asperula Cynanchica. Dry banks.

Valeriana rubra. Waste ground.

Cnicus acaulis. On the downs.

Conyza squarrosa. Rocks on the hills.

Aster Tripolium. On the shore.

Convolvulus Soldanella. Sandy shore.

Marrubium vulgare. Waste ground, sparingly.

Plantago maritima, Glaux maritima, and *Salsola Kali.* Sandy shore.

Chenopodium murale. Waste ground.

Rumex pulcher. Church-yard at Uphill.

Triglochin maritimum. Shore.

Ophrys apifera. Rocks on the hills.

Carex arenaria, Ammophila arundinacea,

Phleum arenarium, and *Triticum junceum.* Sandy shore.

Triticum loliaceum. Dry road-sides near the sea.

I searched along the shore a considerable time, without success, for *Herniaria glabra*, which in the 'Botanist's Guide' is said to grow there; and am ready to fear that it has become extinct, if indeed it ever grew there, and if some other plant in an immature state was not mistaken for it.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXXV.—*Rarer Plants found near Ventnor, Isle of Wight.*

By G. S. GIBSON, Esq.

THE following is a list of some of the rarer plants found in the neighbourhood of Ventnor, Isle of Wight, during a week's stay at that place in the summer of 1843.

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|--|---|
| <i>Clematis Vitalba</i> . Hedges, abundant. | <i>Medicago sativa</i> . Near the east end Bonchurch. |
| <i>Papaver hybridum</i> . Cornfields, sparingly. | <i>Hippocrepis comosa</i> . Near St. Lawrence. |
| <i>Glaucium luteum</i> . Sea-shore, plentiful. | <i>Rosa spinosissima</i> . Near St. Lawrence, scarce. |
| <i>Fumaria capreolata</i> . Wayside at St. Lawrence. | <i>Epilobium angustifolium</i> . Near Luccombe chine. |
| <i>Matthiola incana</i> . Chalky cliffs at Steephill, near Ventnor, for some distance, chiefly in inaccessible places, and to all appearance wild. | <i>Apium graveolens</i> . Shore and cliffs in several places. |
| <i>Cakile maritima</i> . Bonchurch and Shanklin. | <i>Petroselinum segetum</i> . Not uncommon in cornfields, hedges, & waste ground. |
| <i>Silene maritima</i> . Between St. Lawrence and Niton. | <i>Sison Amomum</i> . Hedges, frequent. |
| <i>Arenaria peploides</i> . Shore at Shanklin. | <i>Crithmum maritimum</i> . Cliffs at Steephill and other places. |
| ——— <i>marina</i> . Cliffs nr. St. Lawrence. | <i>Pastinaca sativa</i> . Road-sides &c. comn. |
| <i>Linum angustifolium</i> . Abundant at Shanklin. | <i>Torilis infesta</i> . Cornfields, not uncommon. |
| <i>Lavatera arborea</i> . Waste ground at Ventnor and Shanklin. | <i>Smyrnum Olusatrum</i> . Cliffs at Steephill. |
| <i>Hypericum montanum</i> . Rare near St. Lawrence. | <i>Viburnum Lantana</i> . Common in hedges. |
| <i>Geranium rotundifolium</i> . Old walls at St. Lawrence. | <i>Rubia peregrina</i> . Abundant. |
| ——— <i>columbinum</i> . On the hills in small quantity. | <i>Asperula Cynanchica</i> . On the Downs. |
| <i>Euonymus europæus</i> . Hedges at St. Lawrence. | <i>Galium tricornne</i> . Cornfields near St. Lawrence. |
| <i>Lathyrus sylvestris</i> . Very abundant in the east end of the undercliff near Bonchurch. | <i>Fedia dentata</i> . Cornfields. |
| <i>Medicago maculata</i> . Near Bonchurch and St. Lawrence. | <i>Cnicus eriophorus</i> . East end, near Bonchurch. |
| | ——— <i>acaulis</i> . Plentiful on the hills. |
| | <i>Carduus Marianus</i> . Waste ground near St. Lawrence. |
| | <i>Conyza squarrosa</i> . Shady hedges &c. |
| | <i>Pyrethrum Parthenium</i> . Waste ground. |
| | ——— <i>maritimum</i> . Sea-shore at Steephill &c. |

- Cichorium Intybus*. Fields near St. Lawrence.
- Erigeron acris*. On rocks at the east end near Bonchurch.
- Inula Helenium*. Bonchurch, near the east end.
- Campanula hybrida*. Cornfields near St. Lawrence.
- Vinca major*. Shady hedge near St. Lawrence well.
- Gentiana Amarella*. On the downs.
- Chlora perfoliata*. On the downs and dry hedge-banks.
- Erythræa pulchella*. Cliffs and dry ground near the sea.
- Linaria Cymbalaria*. Wall near St. Lawrence well.
- *spuria*. Waste ground in several places.
- Melampyrum arvense*. Cornfields by the cliff between Ventnor and St. Lawrence and Niton; and on the rocks of the undercliff near St. Lawrence.
- Mentha rotundifolia*. Road-side near St. Lawrence, and in some other moist places.
- Galeopsis Ladanum*. Cornfields &c., frequent.
- Orobanche minor*.* Clover-field between St. Lawrence and Niton.
- *barbata*.* At the roots of ivy and grass about St. Lawrence, plentiful.
- Statice Armeria*. Between St. Lawrence and Niton.
- Atriplex laciniata*. Shore at Shanklin.
- Beta maritima*. Near Bonchurch.
- Rumex pulcher*. Road-sides &c. frequent.
- Thesium linophyllum*. On the downs in several places.
- Urtica pilulifera*. Near Luccombe chine.
- Orchis pyramidalis*. On the downs.
- Ophrys apifera*. Open sunny banks.
- Epipactis latifolia*. East end near Bonchurch, very sparingly.
- Iris foetidissima*. Hedges & waste ground common.
- Tamus communis*. Frequent in hedges.
- Phalaris canariensis*. Waste ground, rare.
- Avena fatua*. Cornfields.
- Hordeum pratense*. Near St. Lawrence.

G. S. GIBSON.

Saffron Walden, August, 1843.

ART. CLXXVI.—*Remarks on Botanical Classification.*

By THOMAS EDMONSTON, Esq., jun.

Baltasound, Shetland Islands,
September 25, 1843.

SIR,

The subject of the best mode of botanical classification is undoubtedly one not only of much interest, but of vital importance to the science; and having for some time entertained the opinion that the present system of entirely dispensing with an introductory or “artificial” scheme, is not only wrong in theory, and opposed to

* The differences existing between these plants seem to me too slight to constitute them separate species. They both grow in considerable abundance at St. Lawrence, and I could discover very little distinction between specimens of each. May not the trifling distinctions arise from difference of situation and other attendant circumstances?

the principles of philosophical classification, but almost impracticable in practice ; — I have thrown together a few notes on this important topic, in the hope that some botanist will either demonstrate the fallacy of my opinions, or be led to reflect on the incompetence of the “natural” or *fashionable* system to perform all that it promises. With this view the insertion of the following remarks in your valuable journal will oblige,

Mr. Editor,

Yours respectfully,

THOS. EDMONSTON, jun.

To the Editor of ‘The Phytologist.’

IT has of late years become a favorite subject with naturalists, and especially with botanists, to cry down as unphilosophical and as unadapted for the extended knowledge and comparatively mature observations of the age, any system of classification which does not include in the definitions of its divisions a great mass of characters, but which assort the objects of which it treats in groups distinguished from each other by one, or at least by few characteristics. This seems to be the simple difference between the two kinds of classification, the “natural” and the “artificial.”

The object of the present remarks is not so much to enter into the more general principles of classification, as to endeavour to demonstrate and illustrate the proposition,—*That a simple artificial scheme is absolutely necessary as an easy introduction to the study of the science, by which a sufficient knowledge of species may be gained to enable the student to turn to the more complicated generalizations of the other system.*

With this view it will tend to give my remarks more precision and individuality, if I take the two best systems constructed according to the principles of the two methods, namely, the Linnæan, almost universally allowed to be the best artificial system, and the modification of Decandolle’s system adopted by Professor Lindley in his ‘Synopsis,’ which appears to be the best and most consistent of the natural methods, and the one in which its principles are seen to the greatest advantage, — as representatives of the respective modes of classification favoured by their authors.

It is a well-known fact, and one often quoted by the advocates of a natural scheme, that Linnæus never intended his sexual system to supersede a natural one, provided that should ever be discovered. But as in the state of the science at the time he lived, and the comparatively limited knowledge of vegetable structure he possessed, it was

not only impossible he could frame such a system, but also impossible, had it been done, that the state of botanical knowledge would have allowed of its practical utility ; — the object of Linnæus in propounding his artificial system was to furnish botanists with a method of classification, simple and easily acquired, and which would be the great help to gaining the knowledge necessary for constructing and using a natural system : and what was *then* necessary for the state of botanical knowledge *generally*, is, I contend, still indispensable to students *individually*.

To establish this position, it will be well to look first at a few of the general principles and uses of classification as applied to the two rival systems, and then glance at the advantages and imperfections of both.

In the first place, then, as *Nature creates only species*, and as classes, orders, sections, genera, or by whatever names other groupings than specific identity are termed, are merely contrivances for the greater facility of distinguishing and knowing species, I am at a loss to conceive the applicability of the term “natural,” as applied to the systems of Jussieu, Decandolle, Lindley, &c. ; the appropriation of the term must be either without meaning, or it must proceed upon two hypotheses, both of which, I apprehend, it will be found somewhat difficult to establish, namely, that plants have been created upon a certain plan, and thrown by Nature into classes, orders, genera and species ; and secondly, that this scheme of Nature is the same as some one or other of the natural systems : though these hypotheses may doubtless find supporters, I conceive it would be a waste of time to dispute them.

Let us hear Dr. Lindley on the affinities of plants. In his very able ‘Key to Botany’ (p. 40), he says, — “What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown are in one sense artificial, *inasmuch as Nature recognises no such groups.*” ! What then is a natural system ? If no system exists in nature, whence this misnomer ? That no such system exists, is abundantly evident, and by Dr. Lindley’s own showing too, yet botanists speak of it as a settled thing ; and, strange to say, every time such a system is propounded, it is always perfect,—no link is wanting to bind its parts into a harmonious whole, till some new facts or plants are discovered that derange the fair edifice, which has now to be reconstructed only again to be destroyed. The first thing an unassisted student of Botany does, after gaining a knowledge of the rudiments of the science, such as the terminology &c.,

is, to endeavour, by means of descriptions, to ascertain the names of as many plants as possible; I do not mean to say that the name is all he searches for, but that is and must be the first step — it is the root of his knowledge, and without it he cannot proceed one step further. Here he finds the great benefit of classification; instead of having the descriptions jumbled together in a promiscuous heap, he can, by the aid of a good system, soon comparatively isolate the plant he wishes to name, and eventually identify it with some one or other of the species. By this means he begins to know plants, and puts in practice the technical knowledge he was before acquiring. A finished botanist has little or no need of classification. Suppose a botanist knows at once all the plants of Britain, and can tell their distinctions, history and uses; when he arrives at this point the utility of classification ceases; he knows species as species — as separate individuals, and unconnected with their congeners; and though system has been the great means of conducting him to this point, it is no longer of any use to him. And were it possible that in like manner one could be familiar with all the plants on our planet, in the same way would the aids of system be dispensed with; but as this pitch of perfection cannot be attained, and as we are always students—always have more to learn, so we can never lay aside the assistance of classification. Thus it evidently appears that the main use of classification is to assist us in the knowledge of species; classification is the means of acquiring a science,—not the science itself. Let us, by the means of system, learn the name of a plant, we have then many means of gaining the additional information, without which the mere name would be worth nothing. This is, I think, only confining system within its proper limits, without in the least narrowing the sphere of its usefulness. Without enlarging more on this head, which a little reflection will convince any one is and must be correct, let us now glance at the comparative merits of the two systems, as constituting an easy introduction to the knowledge of species.

There never has been a system which is not liable to exceptions; *and when species are classified in more than one set of groups*, this would be nearly impossible, as the different sets of characters used to distinguish the various divisions cannot always be accordant. A system in which the distinguishing characters are limited, is peculiarly liable to this objection; yet notwithstanding the latitude of definition and the vagueness of distinction too common in the characters of natural groups, how many exceptions stare us in the face at the first glance! We should imagine, considering the great outcry which has

been raised against the Linnæan system for this imperfection, that Nature's own system would be free from it:—no such thing! We have three grand groups—Dicotyledons, Monocotyledons and Acotyledons—principally characterized, as their names indicate, by having respectively two, one, or no cotyledons; but we have Acotyledonous plants among the Dicotyledons, as *Cuscuta* and *Utricularia*: *Myrtaceæ* is an order of the same class, but some of the species have but one cotyledon. *Ceratophyllum* and some *Cruciferae* and *Boraginæ* have several seed-leaves, and some *Gramineæ*, an order of Monocotyledons, have two. This shows that even the primary divisions of the natural system are liable to this objection. Then how many anomalous genera are there shuffled and shifted about from this to that order, until, perchance, there must be a new creation of orders for their reception. Again, look at the *precision* of the characters of the orders. Let us take as an example of this quality the order *Ranunculaceæ*, as it is the first in the list, and quote (what are termed) its distinguishing characters, as they are given in Lindley's 'Synopsis.'

"*Sepals* 3—6, sometimes confounded with the petals.

"*Petals* 5—15, hypogynous, distinct, occasionally deformed.

"*Stamens* indefinite, hypogynous; anthers usually turned outwards.

"*Carpels* numerous, seated on a torus, one-celled, or partially united into a single many-celled pistil, one or more seeded.

"*Fruit* either consisting of dry achenia; or berries with one or more seeds; or follicles; or capsules.

"*Seeds* albuminous. *Embryo* minute. *Albumen* corneous.

"*Herbs* or very rarely *shrubs*. *Leaves* alternate or opposite—generally divided, with the petiole dilated and forming a sheath half clasping the stem. *Inflorescence* variable."—Synopsis of the British Flora, ed. 2, p. 7.

Is there a single definite character here? In the first place there may be either a perigone or the calyx and corolla blended together, as in *Anemone*, or a distinct calyx and corolla, as in *Ranunculus*; nay, in some species of *Clematis* the corolla is altogether wanting. The corolla may be regular or irregular, as in *Ranunculus* and *Aconitum*. The stamens are indefinite; the anthers introrse in *Actæa* and *Pæonia*, extrorse in the rest of the genera. The carpels may be distinct, as in *Ranunculus* &c., or form a compound pistil, as in *Actæa*. The seeds may be solitary or numerous; the fruit may be almost anything—pseudospermous, baccate, follicular or capsular. Finally, concerning external characters and general appearance, the plants belonging to this order may be herbaceous or suffruticose; the leaves may be simple or compound; and the inflorescence is like almost all the rest—"variable."

These characters are something like those employed by the French ornithologist, M. Vieillot, in defining his order *Grallatores*. "Feet moderate or long, robust, or slender. Legs half bare; toes slit or webbed, sometimes margined, two before only—three before only—or three before and one behind; pollex raised from the ground, or resting upon it only by the tip, or reposing upon it in its whole length; claws of various forms, not retractile; bill of various shapes."!! So much for a definite arrangement in Ornithology; this is also termed a "natural" system.

My object in bringing forward these instances is neither to undervalue the ability of the eminent authors of these systems, nor the utility of well-constructed natural systems in their proper place; but merely to show the very vague definitions which have crept into our modern classification, and the strange passages sometimes written when authors are determined to see nothing but some shadowy abstraction, which cannot be reduced to practice.

I cannot understand what is sometimes meant by the term, a "natural group." It is said to be a group whose individuals agree in the greatest number of points; and moreover, botanists will tell us that there is always a general resemblance among the members of a natural group (as indeed there must be if they are alike in the majority of their characteristics); now *Myosurus* has but little resemblance to *Ranunculus* or *Aconitum*, and yet they all belong to *Ranunculaceæ*: nor is *Adoxa* much like the ivy, yet both are classed in *Araliaceæ*. And if we examine the characters in detail, we shall find them as dissimilar as the general appearance; in fact, "natural" resemblances have often no existence but in fancy. In such divisions as *Compositæ*, *Cruciferæ*, *Gramineæ*, *Malvaceæ*, *Leguminosæ*, *Labiataæ*, &c., the species of which are very nearly allied, the general resemblance is doubtless striking; but let us not forget that these most generally belong to Linnæan classes, only differing in name from those of the natural scheme.

Notwithstanding Decandolle's advocacy of the Linnæan axiom — "*Genus dabit characterem, sed non character genus*," — it is chiefly his losing sight of this principle, which, though it may sometimes be carried too far, is generally an admirable rule, that has occasioned the introduction into his system of so many vague and useless characters. What Linnæus applies to genera, is equally applicable to natural orders; but instead of endeavouring to find a common character or characters for the group to be established, it would almost seem, in some instances, as if a description were written, a number

of plants thrown together under it, and when some of them did not agree with the definition, exception after exception were interlined, until a great part of it looks something very like nonsense.

It appears to me impossible that when the same characters are employed to designate classes, orders, genera and species, that a distinct definition can ever be established. It is undeniable that certain characters are of ordinal, others of generic, and others again only of specific importance; and characters which in some plants may be used for the primary divisions, in others can only be employed for species. Experience alone is the test of this; and in consequence of this fluctuating importance of characteristic marks, it is impossible strictly to set apart such and such characters for such and such divisions; despite this fact, however, it is well known that there may be certain rules laid down which may very generally be followed, subject to some exceptions. And the tendency towards always employing the same marks of distinction for all groups, most inevitably leads to confusion and anarchy in any science. When it is borne in mind that all the divisions are in every case arbitrary, and when one character cannot be obtained another must be sought for—the cause of this difference of importance will be at once apparent. Enough however on this head. As it has been proved that all the divisions of botanists, under the names of classes, groups, alliances, orders, genera, sections &c. have no existence in nature, it of course follows that any system has for its only ground of utility the facilitating of the knowledge of species; thus in one view all systems are alike artificial, and the only test whereby to know which is the best, is to be found in their *practical utility*.

I object to the “natural” system as the best means of acquiring a knowledge of species, for the following out of many reasons:—

1. Because in this kind of system the principle of contrast or diagnosis is not sufficiently kept in view. A definition or specific character ought to embrace nothing but those points which distinguish the group it is defining from all others: instead of this being the case, the natural school substitutes cumbersome descriptions, containing little definite matter, in which differential characteristics are buried.

2. These differential characters themselves are often injudiciously chosen. This is especially apparent when some rather obscure and not easily discernible characters, derived from the structure of the ovules and seed, are employed to distinguish principal groupings. It is a rule that the characters of primary divisions ought always, when practicable, to be taken from some parts of the plant *easily seen*, or

at least not requiring such delicate microscopical investigation as the natural system often requires. The seed is, in my opinion, altogether too much used in the definitions of the natural school; all the analyses of natural orders are founded on the structure of this organ, and a student must be not only intimately acquainted with the variations of the seed—in itself a difficult branch—but must also have the facilities and knowledge necessary for extensive microscopic investigation, almost before he can cross the external boundaries. Has every student the apparatus necessary for this object? And is not the necessity for it likely to perplex and disgust the student?

3. The divisions are too much multiplied, and the differences between them often too nice. Many instances of this might be brought forward, for which we have not space at present. At all events a too great multiplicity of subordinate divisions must perplex the beginner, and throw unnecessary difficulties in his way.

These are some of the reasons which induce me to think that the “natural” system is not the one suited for initiating beginners into the science; and I shall now shortly mention a few of the principal reasons why the Linnæan system appears to me preferable for this object.

No one attempts to deny the facility with which the Linnæan system is acquired, and the great simplicity of its structure as compared with the other method; and the only controversy between the advocates of it and those of the natural scheme, is as to which is the easiest and most profitable in practice.

The points in which the Linnæan seems to me to surpass the natural method, are the following:—

There is nothing superfluous in the characters of the main groups: a distinct definition is established, and no diffuse details are allowed to interfere with the precision of this definition. By reason of this we at once come to the essential part of the character, and have no trouble to hunt it out from among a number of common characters. Again, these characters are drawn from parts of the plant very important in themselves, not liable to vary, and easily and at once recognized; the primary divisions are comparatively few in number, and for the most part, in the same ratio the difficulty of ascertaining any plant we wish to know is diminished. And finally, a very great degree of precision is unquestionably attained, by the employment of different characteristics to define different groups.

The objections sometimes urged against the Linnæan system, appear to me strangely unfounded. On this head Dr. Lindley has the

following remarks. "The student must be acquainted with the meaning of many technical terms; he must have his plant in different states of growth; he must procure the fruit; he must examine the interior of that part: in short he must go through a long and careful examination, which is entirely independent of the sexual system." Now if the sexual system set out with teaching Botany by intuition, so to speak, and dispensing with either the knowledge of technical terms or the examination of the parts of the plant, this criticism might be just; but as it does not lay claim to these properties, I am at a loss to conceive its applicability. At the same time with the above, Dr. Lindley goes on to say, "Now I distinctly assert that there is no difficulty in determining the natural orders of plants greater than that of making out the genera by the Linnæan system; in fact it is the very same thing, only with a different result: in the one case it leads to the mere discovery of a name, in the other to the knowledge of a great number of useful and interesting facts, independent of the name." Now if it be the case that the student must go through the same process—examine the same parts—in the one as in the other system, it will be singular if the amount of knowledge gained is not equal. In fact the examination necessary for the knowing the genus and species of a plant, after you have got at its class and order by the Linnæan system, gives as great an amount of information concerning the plant itself, as if this end were attained by the natural system, with this difference, that the information is far more easily acquired, and the process not nearly so complicated.

Botanists of the natural school thus blame the Linnæan system for compelling the student to examine the plant, which examination is the means of his gaining the great amount of information the natural system undertakes to teach, and then assert that the Linnæan student gains nothing but a name!! It is a favourite theme of animadversion on the illustrious Swede and his followers, that their system teaches nothing but names, and deals more in dry distinctions than in facts which lead to our more perfect knowledge of the subject: we will not retort on such critics that useless verboriosities and aimless speculations constitute the main foundations of *their* system. That the beautiful precision introduced into a previously chaotic science by the master mind of Linnæus, had, when it fell into the hands of men of contracted minds, the effect of limiting the science more to the study of distinctions and of names than of facts and history, is not to be denied: but this is not the legitimate result of the Linnæan system;

and its perversion, by men incapable of appreciating or using it, does not militate against the scheme itself.

In opposition to the experience of Professor Lindley, who "was driven to seek refuge in the natural system from the difficulties and inconsistencies of the Linnæan," we could proudly point to names the greatest in the annals of the science, who trode in the steps of the Upsal Professor, — to Thunberg and Solander, to Banks and Woodward, to Smith and Hooker, and hundreds of others, both in this and every other country, who, under the banner of Linnæus, have been the principal means of raising Botany to her present station among the sciences.

The above are a few brief and meager notes on a very important and fruitful theme, and one on which I could have wished to enlarge more than my limits would permit. I hope, at no very distant period, again to recur to it in another form, when my reasons for entertaining the views here expressed will be more fully illustrated; but in the mean time if these remarks can only induce botanists to examine the merits of the two systems carefully and impartially for themselves, I am persuaded they will, in most instances, come to the same conclusion that I have done.

THOS. EDMONSTON, JUN.

ART. CLXXVII. — *Notice of a new British Calamintha, discovered in the Isle of Wight.* By WM. ARNOLD BROMFIELD, Esq., M.D.

I HAVE great pleasure in announcing, through your pages, the discovery by myself, on the 29th of August last, of a *Calamintha*, which will probably prove to be the true *C. officinalis* of the continental botanists, and is now in full flower. It is in a beautiful and picturesquely wooded valley between Apes down and Rowledge, about three miles and a half from Newport towards Yarmouth in this island, that this fine addition to the *Labiatae* of Britain grows in the greatest profusion and luxuriance, and I have no doubt as truly indigenous as the common *Origanum vulgare* and *Clinopodium* that accompany it, and which it even surpasses in abundance. Leaving Newport by the lower or southern Yarmouth road through Carisbrooke and Calbourne, and a little before arriving at Swainston, the seat of my friend Sir Richard Simeon, Bart., on whose estate the plant grows, you come to a farm house (Apes down) by the road side, and situated at the northern termination of the valley alluded to. Nearly opposite this farm,

on the other side of the road, is a low meadow, in which *Cyperus longus* may be found growing pretty plentifully, and flowering at the close of August and throughout September, if spared by the scythe, but it is neither so luxuriant nor so abundant as in another station near Niton, at the back of the island. Passing through the farm-yard at Apes down, a road conducts to Rowledge, at the upper end of the valley, the sloping sides of which are clothed with thick woods interrupted by bands or strips of down, whilst the centre is occupied by corn-fields; the soil is of a chalky nature, and full of loose angular stones. In these woods, on the right or western side of the valley, ascending from Apes down, the *Calamintha* may be found, growing amongst the long herbage and under the shade of the bushes, in vast quantity, for a great part of the way towards the head of the vale, scattered over the hill-side copses wherever there is shade and shelter sufficient, but, unlike our common species of *Calamintha*, always avoiding open and exposed situations, or where there is not plenty of herbage and undergrowth, in which respects it resembles *Melittis Melissophyllum*, a plant which, though frequent immediately on crossing the Solent to the main land of Hampshire, I have hitherto been unable to detect in the Isle of Wight.

Our *Calamintha* is a highly beautiful plant, with flowers of a fine pale rose colour, spotted with purple or even blood-red: the corolla is nearly an inch long, and three times the length of the calyx. Besides the vastly larger size of the flowers and leaves, which last are of a brighter green (pointed and much more closely and acutely serrated) than in the usual form of *C. officinalis*; the whole plant is taller, more slender and much less branched: the stems are lax, ascending or reclining: the cymes (cymose verticils) fewer flowered; the calyx coloured (purple), the teeth of the upper lip strongly recurved: the lower lip of the corolla is very broad, its lobes rounded, the middle one but little exceeding the two lateral ones in length, and separated from them by a very narrow and shallow emargination, hence appearing almost as one undivided lobe. *Calamintha officinalis* is well known as a native of rocky and shady subalpine woods in Switzerland, Carniola, and other parts of the South of Europe, and may well be found with us at a less considerable elevation, being probably one of those plants that, like *Tamus communis*, *Briza minor*, *Gastridium lendigerum*, and other species common here, have a tendency to migrate in a north-westerly direction towards their vanishing point.* No one who has

* This is remarkably the case with the Irish *Ericaceæ* — *Arbutus Unedo*, *Erica*

seen our *Calamintha* in the sequestered woods about Rowledge, can, I think, hesitate to pronounce it truly wild with us; and I trust this notice of its discovery in the Isle of Wight, will, ere long, lead to its detection in other parts of the kingdom. The flowering period, like that of our commoner species (likewise found in this island), appears to be August and September, perhaps continued into October.

Care must be taken, as I have before mentioned (Phytol. 131), not to confound Apes down with Apse farm and Apse castle, between Shanklin and Newchurch; the latter probably had its designation from aspen trees, which in Vectian vernacular language are called *apse*.

WM. ARNOLD BROMFIELD.

Ryde, September 1, 1843.

ART. CLXXVIII. — *Varieties*.

380. *Note on the new Cuscuta*. I enclose some specimens of the *Cuscuta*, gathered yesterday in a field of Sir J. M. Adam's near Thaxted, where it has destroyed a considerable quantity of clover, growing in circular patches of from four to twelve feet in diameter, killing the clover in the centre, and then spreading round to an indefinite extent. It does not appear quite to agree with Babington's description, the limb of the corolla being spreading, as in *C. Epithymum*, of which, perhaps, it will only prove a variety. — *G. S. Gibson; Saffron Walden, August 24, 1843.*

381. *Note on Isnardia palustris*. I may mention that I collected, the last week in August, *Isnardia palustris* in reasonable abundance, in Mr. Borrer's new station at Brockenhurst, though not in flower: the locality brings this rare species within a few miles of our Isle of Wight shores. — *Wm. Arnold Bromfield; Ryde, September 1, 1843.*

382. *The least troublesome method of drying Plants for the Herbarium*. That the art of drying plants is very little understood by the collecting botanists of this country, is but too well shown by the wretched specimens sent to the Botanical Societies for distribution. Yet nothing is more easy than the making of good specimens, by botanists who have the opportunity of drying plants at home, or at any fixed locality. I have tried various processes, in order to ascertain

mediterranea and *Menziesia polifolia*, whose chief seat is in the Pyrenees and mountains of the Asturias in Spain. I find that *Calamintha grandiflora* occurs in Belgium, according to Lejeune, *Fl. de Sp.* 2me part. p. 33.

which is the *least troublesome*, consistently with a *good condition* of the specimens when dried, and have at last settled into the custom of putting *an ample quantity of porous paper between the layers of specimens, and not changing it until the specimens have become sufficiently dry to be taken out of press*. Frequent changing of paper, artificial application of heat, previous immersion in boiling water, and other recommended processes, may be very useful in the preservation of particular species; but they must unavoidably increase the personal trouble, and consume the time of the botanist; and that, too, without equivalent advantage in the case of at least ninety in the hundred of our native species. Some practice is requisite to apportion the pressure to the resistance of the paper and plants, and on the success of this will materially depend the beauty of the specimens. If too little pressure be applied, the specimens shrivel, and remain inconveniently brittle. If too much pressure be used, the structure of parts is rendered less fit for after examination, and the colours are destroyed. The quantity of paper to be introduced between the layers of specimens, will vary according to the nature of the plants and the thickness of the paper itself. In my own practice it ranges from half a quire to many quires of demy grey, common blotting-paper, or thick filtering-paper: grasses and ferns, for example, requiring much less paper than do the lilies and *Chenopodiums*. The more common faults with botanists, are those of giving too little pressure, and using too small a quantity of paper; so that their specimens are both fragile and bad-coloured. Heavier pressure would prevent fragility, — more paper would preserve the colours. I do not recommend my own custom as being productive of superexcellent specimens, but as productive of sufficiently good specimens at the smallest cost of time and trouble to the botanist. And I cannot hesitate to add, after seeing the specimens of scores of other botanists, that those dried by my simple and time-saving process, are considerably above the average in quality, as regards both the preservation of colour, and fitness for fastening on white paper. In illustration, I have used the freedom to address to the Editor, a packet of specimens dried in 1841 and 1843, without any change of papers. They will show that the colours of the *Orchis*, primrose, cowslip, many blue flowers, and other plants which usually fail in this respect, may be well enough preserved without any greater trouble than that of putting the plants into paper when fresh, and taking them out when dried.—*Hewett C. Watson; Thames Ditton, September 15, 1843.*

[The beautiful condition of the plants kindly forwarded by Mr. Watson, fully proves, what indeed we never doubted, the perfect adaptation of his plan to the preservation of botanical specimens. Unfortunately, however, it is only when stationary, either at home or in some fixed locality, that the botanist can avail himself of this method, unless he travel with a horse and cart, and a shop-full of paper, as we believe some of the Edinburgh parties are in the habit of doing in their summer excursions. The poor pedestrian, with his comparatively scanty stock of paper strapped over his shoulders, must dry it whenever he can find an opportunity of doing so; and these opportunities, as we have known to our sorrow, are often "few and far between," and sometimes do not occur until the plants collected on previous days are, so far as their *beauty* is concerned, completely spoiled. Among the specimens sent by Mr. Watson, the whole of which are excellent, we were particularly pleased with the following:—*Linum angustifolium*, *Cerasus avium* and *austera*, *Orchis mascula*, *Euphorbia amygdaloides* (a splendid specimen), and several *Primulas*, with the colour of the flower in all, except the Bardfield *P. elatior*, most beautifully preserved. Many of the plants sent were raised from seeds collected in the Azores; several of these, as *Arthrolobium ebracteatum*, *Polycarpon tetraphyllum* and *Lotus angustissimus*, appear to be identical with British species. We can specify no more than the above very small number of the *good things* contained in Mr. Watson's packet, for which we beg him to accept our best thanks.—*Ed.*]

383. *Shetland locality for Cynosurus echinatus.* It will perhaps interest the readers of 'The Phytologist,' to know that I have this year re-found *Cynosurus echinatus* in Bressa, Shetland, about a hundred yards from where I found it in 1840. I obtained only three rather small specimens; but this fact proves the perseverance of the plant in the locality, and shows the propriety of reckoning it in the Scottish Flora. If such a request be not considered presumptuous, might I mention, through the medium of your pages, that if any of your correspondents could furnish me with even the *loan* of a *South of England* specimen of *C. echinatus*, it would be conferring a great obligation on me. The Shetland specimens, both those collected at first and also now, differ much from my foreign specimens; the latter are admirably and characteristically figured in Parnell's beautiful 'Grasses of Scotland.' They differ from the Shetland form in having a much more *dense roundish* spike, which is covered with a somewhat hoary pubescence, totally absent from the Shetland specimens. I should much like to see an English specimen of this interesting grass, to ascertain which form my plant agrees with.—*Thos. Edmonston, jun.; Baltasound, Shetland, September, 1843.*

[Among the plants mentioned in the following communication by Mr. Gibson, as having been collected by himself in the Vale of Calder, is *Cynosurus echinatus*. We have no doubt that Mr. Gibson will feel pleasure in complying with Mr. Edmonston's request; we also should be much gratified by the receipt of a specimen from each of the localities discovered by these gentlemen.—*Ed.*]

384. *Plants observed in the Vale of Calder.* Yesterday afternoon I had a ramble in the vale of the Calder, between Brighthouse and Sow-erby bridge, a distance of about five miles. The following is a list of the rarer plants which I gathered; if you think it will be interesting to any of your readers, it is at your service. *Lolium temulentum*, arvense and multiflorum;—the last plant I found with from two to sixteen flowers. *Bromus secalinus*, var. *stricta*; the spikelets of this plant are always upright, not drooping, as in the common state. *Bromus arvensis*; this I found in three different places; it appears to be not very uncommon in that part. *Cynosurus echinatus*, *Myosotis collina*, *Erysimum cheiranthoides*, and *Asperula arvensis*. — *Samuel Gibson; Hebden Bridge, September 21, 1843.*

385. *Description of Aspidium recurvum.** The announcement of a new edition of your 'British Ferns' induces me to trouble you with a remark, for which you may perhaps find room in 'The Phytologist.' In the 4th vol. of the 'Magazine of Natural History,' under the head of "List of Rare Plants found in the neighbourhood of Penzance" (p. 162), I mentioned, among other things, *Aspidium dilatatum*, var. *recurvum*, not knowing how else to designate what I believed to be an undescribed British fern; and in a note at the foot of the page I expressed an opinion to that effect. Since the publication of that list, the fern has been noticed by several botanists, and recorded by yourself as a variety of *dilatatum*. I am perfectly aware that *dilatatum* is a most variable species, assuming as it does very different appearances according to soil, situation, shade, moisture, &c. *Recurvum* is equally given (if I may so say) to "ring the changes" on variety, but to a practised eye it is in all its forms readily distinguishable from every form of *dilatatum*. And I now beg to say, that after close observation of the fern in the neighbourhood of Penzance in the year 1817, and on the Irish mountains some years previously, as well as from an intimate acquaintance with the plant in a cultivated state from that time to the present, I am confirmed in my original opinion, that the fern in question is a species distinct from *dilatatum*; and as such I hope to see it noticed in your forthcoming new edition of 'British Ferns.' I may add, that in the above opinion I am borne out by that of the late Mr. James Dickson—no mean authority on such a subject—and by that of Mr. Drummond, formerly curator of the Cork garden. I believe this curled fern is sometimes known among botanists by the name of *Aspidium spinulosum*; and, for all I know to the con-

* In a letter to E. Newman.

trary, it may be identical with the spinulosum of *continental* writers ; but on that point I do not mean to express any opinion, being quite ignorant what the *A. spinulosum* of the continent is. But the fact is worth recording, and it may save botanists some trouble and perplexity to state, that the application of the specific name of spinulosum to a *British* fern—(first adopted, I believe, by Smith and Sowerby in ‘English Botany’) originated in error; the fern so named and figured in ‘English Botany’ being nothing more than a young or starved specimen of *A. dilatatum*, as I was informed many years ago by Mr. Mackay, who supplied the very specimen described and figured in that work. The fern called spinulosum by the late James Dickson, is quite different from recurvum, and is, I believe, generally considered as a small variety of dilatatum, although from the large form of the latter species it appears, at first sight, to be abundantly distinct, and ought, I think, to be so regarded. I admit, however, that there do occur intermediate forms or varieties — “connecting links” they may be called — which, if dilatatum and spinulosum (Dickson) are regarded as *two species*, render it extremely difficult to draw the line of demarcation between them, and to say where the one ends and the other begins.— *W. T. Bree ; Allesley Rectory, September 19, 1843.*

386. *Locality for Epimedium alpinum near Bristol.* About fourteen years ago, when in company with other gentlemen on a botanizing excursion, I gathered *Epimedium alpinum* in Leigh wood, near Bristol. At the time I made no note of the exact spot where the plant grew, and circumstances removed me from Bristol soon afterwards, when the pursuit of the science was interrupted for a long interval; but it was in the northern division of the wood, belonging to P. J. Miles, Esq., that the plants were found. Leigh wood is there coppice, which is cut in portions in rotation ; and it is probable exposure to sun and air may have destroyed the *Epimedium* for a time, and that it will re-appear as the coppice again grows and affords suitable shade. Since the period before mentioned I have not gathered a single specimen, but as the wood is a large tract, I may not have investigated the spot where the plant was originally found. A specimen gathered by myself is extant in the herbarium of G. Rogers, Esq., of Bristol. I cannot guess how the *Epimedium* was introduced into Leigh wood, which is natural coppice ; yet Mr. Babington considers the plant to have but slender claims to be ranked as a native. Be this as it may, the present is the most southern habitat for this interesting plant, which has, up to this time, been considered as entirely

confined to the northern counties.—*Henry Oxley Stephens*; 78, *Old Market St., Bristol, September 29, 1843.*

387. *Note on the Weymouth locality of Vicia lævigata.* In reference to Mr. G. S. Gibson's list of the rarer plants observed by him at Weymouth during the present year (*Phytol.* 735), I beg leave to state that I was staying at Weymouth for a month in the autumn of the year 1837, and that I then most carefully examined the coast and Chesil bank for miles, in search of *Vicia lævigata*, but was wholly unsuccessful. I am perfectly satisfied that it does not now exist in that locality. I found most of the plants mentioned in Mr. Gibson's list, and also *Vicia bithynica* in hedges on the east side of the Backwater, but sparingly. *Lathyrus Nissolia*, *Polycarpon tetraphyllum* &c. were not found by me.—*A. Bloxam*; *Twycross, October, 1843.*

388. *Surrey localities for Linaria spartea and Senebiera didyma.* About a month ago I observed numerous plants of *Linaria spartea* extending over a space of four hundred square yards, in a stubble field opposite the Walton station-house, on the south-western railway. Though the plants had been cut down with the corn, many of them still produced flowering-branches from the lower part of the stems, and five hundred specimens might have been collected. This ground was part of Walton heath before the formation of the railway, but has since been inclosed and brought under cultivation. I had not previously been on the exact spot where the *Linaria* was found, although I had crossed the heath on different occasions while the railway was in progress, without having observed any specimens of the plant; and I should deem it highly probable that the seeds had been introduced by some means within the last three or four years. *Senebiera didyma* was found at West end, near Esher, by the side of the road which runs from Esher bridge to the Portsmouth road, on Winter downs; there were a score or two plants of it, on a spot where I had seen garden refuse thrown a few years ago, and where I feel very confident the plant in question did not grow before the year 1840. Both these species are likely enough to maintain their ground by seed, and on this account it appears desirable to put on record their appearance (probably quite recent) in these localities. Three plants of the garden form of *Hyoscyamus niger* (?) with a clear yellow flower, destitute of black lines, were growing with the *Senebiera*. I should add that the *Linaria* is the ornamental plant cultivated in gardens under the name of *Antirrhinum sparteam*; but whether or not it is also identical with *A. junceum*, I cannot say with certainty.—*Hewett C. Watson*; *Thames Ditton, October, 3, 1843.*

389. *Succession Buds in the axilla of a single leaf.* In making a reference to a late No. of 'The Phytologist,' my eye rested accidentally upon Mr. W. Wilson's note on the axillary buds of the common locust-tree (Phytol. 613). There is no express statement in that note whether it was the plurality or the concealment of the buds that was deemed deserving of particular record; but the language and note of admiration ("when lo! instead of a solitary bud, no less than three were contained in the hollow base of each petiole") would seem to imply the former. Several garden plants produce a succession of buds from the axilla of the same leaf. Some of the Fuchsias, for example, first produce a flower-bud from the axilla, and afterwards a leaf-bud develops into a shoot immediately above the peduncle of a flower; and above the base of this young shoot, in turn, the rudiment of another branch or leaf-bud may be observed. So, also, two buds are produced for successive development into branches, at the axilla of a single leaf of *Lophospermum erubescens*. In the vine, two buds are produced, side by side, in the axilla of a leaf; one of them being commonly, though not invariably, developed into a shoot the first year. As in the case of the locust-tree, the vine also rapidly produces a second shoot from the same part of the stem, after its first shoots have been killed by spring frosts; but perhaps this occurs only at those places where both the buds have remained dormant until the second year.—*Id.*; October 17, 1843.

390. *Leaf-buds produced from Roots.* While on the subject of buds, I may add a note on a statement made in Dr. Lindley's 'Introduction to Botany,' p. 51. It is curious to find, in a work so generally accurate, the statement of "roots being essentially characterized by the absence of buds." Yet it is a very common occurrence for shoots or suckers to be produced from the roots of trees, many yards distant from their stems, and connected with the stems only through the roots from which they grow. In the roots of poplars, common horse-radish, and many other trees and herbs, the tendency to produce suckers is so strong, that they may be rapidly multiplied by cutting their roots into short lengths, which produce suckers and become distinct plants. No doubt suckers are frequently nothing but shoots from the base of the stem, which run some distance underground; but in the cases above mentioned, the sucker grows directly from the true root. Such suckers are buds developed into shoots under ground. I should, however, observe that in another part of the same work, the author in some degree contradicts his first statement, while repeating it; namely, "a root has no leaf-buds, unless indeed, as is sometimes the case,

it has the power of forming adventitious ones." It seems to me, that we might just as correctly apply the term "adventitious" to the runners of a strawberry, as to the suckers from the roots of a poplar: the runner and the sucker are ordinary and natural modes of propagation.—*Id.*

391. *Note on Carex distans.* I trust you will allow me to assure Mr. Wilson, that when I make any enquiry, *it is for the purpose of gaining information*, (Phytol. 746). I do know that the stalk (*scapus*) is that part of a plant which elevates and supports the flower; and I should expect that by the words "barren stalk" is meant that part of the stem which lies between the uppermost fertile spike and the bottom of the barren one; but after allowing this, I am at a loss to know what is to be understood by the sheathing bractees of these stalks. I am also at a loss to know the meaning of remodelling the specific characters of our Carices; for if they have been once accurately described, I see no occasion for their characters being remodelled: but it appears to me that Mr. Wilson has always found himself at fault in making out the difference between *Carex distans* and *C. binervis* (see 'British Flora,' ed. 1, p. 396, and ed. 5, p. 430). I do not pretend to have any superior skill in discriminating our Carices, but I will say that *Carex distans* may always be known from *C. binervis* by the form of the nut; as see Mr. Leighton's *very correct* outline figures of that part. If I were to remodel the description of *C. distans*, it would stand as follows. I should first place it in a section with *C. flava* and *pulla*. I make this arrangement, because the stigmas in these three plants are so variable, *C. pulla* having from two to three, *flava* from two to four, and *distans* from three to five. *CAREX distans*. I.—Barren spike solitary, with obtuse scales. Fertile spikes from two to four (rarely five), erect, with the peduncles inclosed about half way up by the sheathing bases of the foliaceous bractees; ligula opposite the leaves, blunt. Perigynium oval, suddenly contracted and forming a narrow bifid beak, which is often toothed on its edges, ribbed, ribs equal, seven on each side, two on the margins: nut oblong, elliptical, *equally attenuated at each end*, the number of angles is from three to five, depending on the number of stigmas. This will be found somewhat at variance with Mr. Babington's description of *C. distans*, the reason of which is that Mr. Babington has referred a plant to that species which I consider distinct. It differs from *C. distans* in having its perigynium much larger and much less distinctly ribbed, and not suddenly contracted, but regularly tapering to the bifid point. The glumes of the fertile spikes in this plant are only about half the

length of the perigynium: the fertile spikes are much shorter than in *C. distans*, and their peduncles quite inclosed in the sheaths of their bracteas. This form grows inland on dry ground, as at Jackdaw crags, near Tadcaster, &c. Perhaps it will be said by some that the occurrence of four stigmas in *Carex distans* is accidental; in reply to this I would say that to me it appears not to be accidental, since I have the plant from several localities, in three different counties, and all the specimens have more or less of the perigynia in every one of the fertile spikes possessing four stigmas; though it has been stated by a person who thinks himself no tyro among the Carices, that such a thing could not be in *nature*, as a *Carex* with four stigmas and a four-angled nut. The specimen I now inclose is from Wallazey pool, Cheshire; perhaps you will tell your readers how many stigmas it has.* I will conclude this note by saying, in reply to Mr. Wilson, that the passage alluded to (Phytol. 680) is somewhat obscure to me; and as I know nothing of any *fountain-head*, I shall feel obliged by an explanation.—*Samuel Gibson; Hebden Bridge, October, 1843.*

392. *Note on a new British Carex.* While on the subject of Carices, perhaps I may be allowed to offer some remarks on a few other species of that genus. The first I wish to notice is the plant which I mentioned some time ago (Phytol. 366), as a form of *C. teretiuscula*, with fruit as in *paniculata*. In August, 1842, this plant was given to me for *Carex teretiuscula*; in June, 1843, I had the same plant sent from Manchester under the name of *C. paradoxa*: since that time I have examined the plant with great care, and my opinion now is that it is not a state of either of those species. For my own convenience I propose the following name: — *CAREX Pseudo-paradoxa*. Spikes panicled, branches approximate: perigynium ovate, gibbous, acuminate into a serrulate bidentate beak, more or less plano-convex, with seven nerves on the convex side (three very slender in the middle and two strong ones on each side of them), the outer nerves, or those nearest the margins, being very short; nut rhomboidal, narrowing from below the middle; style enlarged at the base: stem three-angled, angles rough on the upper part: leaves narrow, rough on their edges. This plant differs from *C. teretiuscula* in having its spike more distinctly panicled, in its nut being narrowed upwards from be-

* On examination of the specimen above alluded to, we find that many of the fertile florets have four stigmas, as Mr. Gibson has correctly observed. We have taken the liberty of omitting some remarks on the fifth edition of the 'British Flora,' since they are scarcely relevant to the question under consideration.—*Ed.*

low the middle, and in its style being thickened at the base : in *C. teretiuscula* the style is not thickened at the base, and the nut is pyriform, narrowing downwards from above the middle. This plant grows in the neighbourhood of Manchester, but I am sorry to say I cannot give the exact locality, *as that is a secret*. The same plant grows plentifully by the sides of Malham tarn, near Settle, in Yorkshire. It is nearly allied to *C. paradoxa*, which grows in Islington fields, near York, and is accurately described by Mr. Babington in his 'Manual,' (p. 337). *C. paradoxa* may at once be distinguished from this plant by its perigynium, which is more gibbous, and has about nine nerves on the convex side and seven on the other.—*Id.*

393. *Note on Carex boenninghausiana and C. axillaris.* The next I would notice are *Carex axillaris* and *C. boenninghausiana*; see Babington's 'Manual' (p. 339), Mr. Luxford's note (Phytol. 650), and Mr. Edmonston's list of Edinburgh plants (*Id.* 407 and 522). This will, I think, be some excuse for my enquiry (Phytol. 263); and perhaps, after all, *C. axillaris* may turn out to be a much rarer plant than was suspected. The following short description I drew up from one of the specimens referred to by Mr. Luxford, while in my possession; since that time Mr. Luxford has been kind enough to give me one of those specimens. *CAREX* —? Spike three inches long; spikelets ten in number, the two lowest compound and about an inch asunder, the remaining eight regularly decreasing in distance: lower bractea with a narrow ligula passing round the stem: leaves flat, about one-eighth of an inch in breadth, sheathing the stem at their base: stem eighteen inches high, with three rough angles: perigynium ovate, acuminate, serrulate nearly to the base, and very slightly bifid at the point: calyx-scales brown, with one strong nervure, more or less discontinued below the point, which has broadly membranaceous edges. The specimen is from Crichton castle, near Edinburgh, one of the stations given by Sir Wm. Hooker for *C. axillaris*. I have other specimens of the same plant from Borthwick castle, near Edinburgh, gathered by Mr. Ainley of Bingley; and others from the same locality. I have also two fine specimens of this plant, which were given to me in 1834, without any name, but marked "Putney, near London;" this also is one of the stations given for *C. axillaris*. Perhaps many of the stations that are given for *C. axillaris* would turn out to belong to this plant, if carefully examined. The true *C. axillaris* I have from the Edinburgh Botanic Garden, and from Southampton, and others from Over in Cheshire.—*Id.*

394. *Note on Carex muricata.* The last *Carex* I shall notice at

present is *C. muricata*, as we have two very different plants passing under this name. One of them grows in bogs and other like places, and has a fruit like Mr. Leighton's figure, marked Pentland hills; the other form grows on dry ground, and is a much more slender plant, with narrower leaves, and a fruit more like Leighton's fig. β . As these two forms do not well agree, it would perhaps be more convenient to separate them, the smaller form being the same as the *Carex Hookeriana* of the American botanists. I think this step the more advisable, as this form will just stand between the larger or *true muricata* and *divulsa*. The first or larger form grows at Weston bog, near Otley, and many other places in Yorkshire. The second or smaller form I have from Reigate, given to me by Mr. Luxford; and from Bingley, by Mr. Ainley. I have other specimens from Scotland and many of the English counties; my American specimens are from Mr. Nuttall. Much might be said on the nomenclature of some others of our Carices, such as the *distans* of Withering, which is the *speirostachya* of Smith, and now the *fulva* of Hooker and others.—*Id.*

395. *Birch Wine*. I have often drank a beautiful wine in this neighbourhood, sparkling like champagne, which is made without sugar, water or spirit, being merely the sap of the birch-tree, boiled with honey and fermented with a little yeast. The birch grows abundantly about Bucklebury near here, so that on the advance of spring these trees are tapped, and a hollow tube inserted into the hole, through which the sparkling sap flows drop by drop into a vessel placed below. Fine weather is, of course, best for this operation. — *William Hewett; East Ilsley, Berks.*

396. *Localities of a few Plants lately observed.*

GLAMORGANSHIRE, (in addition to Mr. Gutch's List, Phytol. 104, &c.)

- | | |
|--|---|
| <i>Lepidium latifolium</i> . Near Neath. | <i>Atriplex littoralis</i> . Swansea. |
| <i>Brassica oleracea</i> . Cliffs near Dunraven. | <i>Schænus nigricans</i> . Cromlyn bog. |
| <i>Erodium maritimum</i> . Near Swansea. | <i>Scirpus maritimus</i> . About Neath. |
| <i>Oenothera biennis</i> . Near Neath. | <i>Eriophorum polystachion</i> . Cromlyn bog. |
| <i>Spergula nodosa</i> . Near Pennard castle. | <i>Carex extensa</i> . Near Neath. |
| <i>Campanula glomerata</i> . Near Dunraven. | <i>Poa maritima</i> . Ditto. |
| <i>Borago officinalis</i> . (with white flowers).
Near St. Donat's. | <i>Triticum junceum</i> . Ditto, and Cromlyn
burrows. |
| <i>Statice Limonium</i> . Near Neath. | — |
| <i>Marrubium vulgare</i> . Near Port Eynon. | <i>Cnicus tuberosus</i> . Between St. Donat's &
Dunraven. I have not heard of any
recorded habitat for this plant, ex-
cept the Wiltshire one; and should
like to know if it has been found
anywhere else in England or Wales. |
| <i>Orobanche barbata</i> . Oystermouth castle
ruins. | |
| <i>Ruscus aculeatus</i> . Shore of Oxwich bay,
near Pennard castle. | |
| <i>Rumex Hydrolapathum</i> . Cromlyn bog. | |

RADNORSHIRE.

NEAR CLYRO.

<i>Circea alpina</i>	<i>Paris quadrifolia</i>	<i>Hypericum Androsæmum</i>
<i>Myosotis repens</i>	<i>Campanula latifolia</i>	pulchrum, &c.
<i>Eriophorum pubescens</i>	<i>Hypericum dubium</i>	<i>Mentha sylvestris</i>
RHOS GOCH, NEAR CLYRO.		
<i>Narthecium ossifragum</i>	<i>Littorella lacustris</i>	<i>Eriophorum polystachion</i>
<i>Menyanthes trifoliata</i>	<i>Genista anglica</i>	angustifolium
<i>Comarum palustre</i>	<i>Sison inundatum</i>	vaginatum
<i>Veronica scutellata</i>	<i>Orchis latifolia</i>	
<i>Meconopsis cambrica.</i> Craig Pwll Dhu.	<i>Littorella lacustris</i> and <i>Nymphæa</i>	
<i>Viola lutea.</i> Hills near ditto.	<i>alba.</i> Llanbychlyn pool, near Craig	
<i>Trollius europæus</i> and <i>Epipactis latifolia.</i>	Pwll Dhu.	
Near ditto.	<i>Sedum anglicum.</i> Rocks near ditto.	
<i>Mænchia erecta.</i> Hills near ditto.	<i>Lemania fluviatilis</i> & <i>torulosa.</i> On stones	
<i>Sedum Forsterianum</i> and <i>Saxifraga hyp-</i>	in the stream at Water-break-its-	
<i>noides.</i> Near Water-break-its-neck.	neck and Craig Pwll Dhu.	
<i>Epilobium palustre, Ranunculus Lingua,</i>		

BRECKNOCKSHIRE.

<i>Cerasus Padus.</i> Hedges about Chapel y	<i>Gnaphalium dioicum.</i> Near the Cil hep-
Fin and Llanthony.	ste falls.
<i>Saxifraga hypnoides</i> and <i>Vaccinium Vitis-</i>	————— <i>Margaritaceum.</i> Near Pont
<i>Idæa.</i> Black mountains.	Nedd Fychan.
<i>Cnicus pratensis, Hieracium umbellatum</i>	<i>Habenaria viridis.</i> Ditto.
and <i>Narthecium ossifragum.</i> Near	<i>Geum rivale.</i> Falls of the Melte.
Ystrad Felltre.	

HEREFORDSHIRE.

<i>Hesperis matronalis.</i> Banks of the Lug,	<i>Melica nutans.</i> Wynd cliff, near Chep-
near Aymestree.	stow.
— <i>T. Westcombe</i> ; Worcester, October, 1843.	

397. *List of Mosses found near Castle-Howard, Yorkshire.* I send for insertion in your valuable journal, a catalogue of mosses found within three miles of Castle-Howard. To be more explicit, however, with regard to the boundaries of the district, I may state that I have confined my observations entirely to those species found on the Earl of Carlisle's estate, the extreme points of which rarely extend beyond the distance specified above. The same remarks will apply to my list of flowering plants (Phytol. 577), where I omitted to mention this important circumstance. The list annexed below is the result of several years' careful investigation, and I think will not only be considered an interesting but a comprehensive one, in proportion to other districts of similar extent. The extensive woods, many varieties of soil, &c. may however, with some degree of probability, be taken into consideration, as circumstances favourable for the growth of this order

of plants. I have affixed a cipher to those species which I have not yet detected in a state of fructification.

Anomodon curtispiculum	Hypnum aduncum	Hypnum triquetrum
viticulosum	albicans 0	undulatum
Bartramia arcuata	alopcurum	velutinum
fontana	Blandovii	Leucodon sciuroides 0
Bryum affine	brevirostre	Neckera crispa 0
albicans 0	commutatum	pumila
argenteum	complanatum	Orthotrichum affine
cæspititium	confertum	anomalum
capillare	cordifolium 0	crispum
carneum	crassinervium	cupulatum
hornum	cupressiforme	diaphanum
ligulatum	curvatum	pulchellum
marginatum	cuspidatum	striatum
nutans	dendroides	Phascum bryoides
palustre	denticulatum	cuspidatum
punctatum	filicinum	subulatum
roseum 0	fluitans 0	Polytrichum aloides
rostratum	loreum	commune
squamulosum 0	lutescens	juniperinum
ventricosum	medium	nanum
Daltonia heteromalla	molluscum	piliferum
Dicranum adiantoides	multiflorum	undulatum
bryoides	murale	urnigerum
cerviculatum	mysuroides	Sphagnum acutifolium
flexuosum	nitens	cuspidatum 0
glaucum 0	palustre	obtusifolium
heteromallum	piliferum	squamulosum
scoparium	polymorphum 0	Splachnum ampullaceum
taxifolium	populeum	Tetraphis pellucida
varium	prælongum	Tortula convoluta
Didymodon flexicaulis 0	proliferum	fallax
heteromallus	purum	muralis
purpureus	ruscifolium	rigida
rigidulus	rutabulum	ruralis
Encalypta streptocarpa 0	salebrosum 0	subulata
vulgaris	Schreberi 0	tortuosa 0
Fontinalis antepyrethica 0	scorpioides 0	unguiculata
Fumaria hygrometrica	sericeum	Trichostomum lanuginosum
Grimmia apocarpa	serpens	Weissia cirrata
pulvinata	splendens	controversa
Gymnostomum fasciculare	squamulosum	curvirostra
ovatum	stellatum	lanceolata
pyriforme	stramineum	recurvata
truncatulum	striatum	trichodes
viridissimum	tenellum	verticillata
Hookeria lucens	trichomanoides	

—H. Ibbotson: *Ganthorpe, near Whitwell, Yorkshire, Oct. 20, 1843.*

398. *Note on the Second Flowering of a Horsechestnut Tree.* There is a fine horsechestnut tree standing in a garden at the corner of the Lyndhurst road, in Peckham. This tree is remarkable for a propensity to blossom early in the spring; it is invariably the earliest in the neighbourhood, both as regards leaves and flowers, and is an object of admiration to our residents, as well as to the gentle race of citizens who disport themselves in our atmosphere on Sundays. This year its leafy and flowery honours were nipped by an untimely frost; they became brown and shrivelled, and the tree remained throughout the summer months a most unsightly object, while its more prudent neighbours were quite uninjured. In September new buds made their appearance, sent forth new leaves, and new spikes of beautiful flowers. On the 1st of October the tree was clothed in a robe of bloom, and since then I have daily walked through the fallen flowers which strew the footway beneath its branches.—*Edward Newman: Hanover St., Peckham, October 25, 1843.*

ART. CLXXIX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 6, 1843.—John Reynolds, Esq., Treasurer, in the chair.

Donations to the library were announced from Dr. Goodfellow, Messrs. Quekett, Woodward, and Rich, and the Microscopical Society. British Plants had been received from the President and Miss M. Beever, and a very large collection of East-Indian Plants, many of them collected by Dr. Wight, were presented by the Royal Horticultural Society of Cornwall.

Mr. Adam Gerard exhibited a collection of Fruits and Seeds from Sierra Leone, containing specimens of the fruits of the butter and tallow tree (*Pentadesma butyracea*).

Read, "Notes of a Botanical Excursion to Tilgate Forest in August last," by John Reynolds, Esq., Treasurer.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

October 18, 1843.—J. S. Bowerbank, Esq., F.R.S., in the chair.

Read, a paper by Edwin J. Quekett, Esq., on "An Instance of Monstrosity in a Moss." After some observations on the well-known fact that the several organs which constitute the flower and fruit of a plant are only modifications of leaves, and also on the formation of double flowers by the conversion of the parts of reproduction into petals, Mr. Quekett stated that although instances of these changes were extremely common in *flowering* plants, they are but rarely met with among those which are *flowerless*; still, however, they do occur sufficiently often in the latter, to prove that the same law which operates in the former instances, obtains also in some of the higher

orders of flowerless plants, as in the case of certain ferns, in which minute leaves occasionally occupy the position of the sorus, or part appropriated to the organs of reproduction. Professor Lindley, in speaking of the mosses, suggests that the calyptra, the operculum, and peristomium may be nothing more than modifications of leaves; and that even the theca itself may also be the distended apex of the stem. No specimens of mosses, however, illustrating this identity of the organs of reproduction with those of nutrition, appear to have been observed, until Mr. Quekett discovered some which go far to prove that these minute organs are capable, under certain circumstances, of being converted into leaves, thus leaving but little doubt that modifications of leaves are here employed as in ferns and in the higher orders of plants, to constitute the parts concerned in the duty of reproduction.

The specimens were produced in the following manner. Having placed some mosses, with the fructification in different stages of development, in one of the close-glazed cases introduced by Mr. Ward, the author found that one of them (*Tortula fallax*), which, when it was placed in the box, exhibited every tendency to produce fruit, after a time lost every appearance of fruit advancing to maturation, a small tuft of leaves appearing in its place. Upon examining the plant under the microscope, it was evident that it was furnished with the usual leaves at the base. The seta existed of the usual brown colour, quite destitute of leaves; but in the place of the capsule, there was a continued elongation of the seta, of a green colour, bearing several leaves, which were also green, and varying in number from twelve to sixteen; and the author considers it probable, that the elements of the modified leaves, which otherwise would have formed the capsule and peristome, had been so influenced and changed by the heat and moisture of the situation in which they had been placed, as to bring them into a state fitted apparently for the purposes of nutrition only, and not of reproduction. This change he supposes to have been effected by the elongation of the columella, and the consequent carrying up of those leaves whose apices would, in the natural state, have formed the peristome. This variation from the ordinary structure of the parts of reproduction in a moss, appears, in his opinion, fully to bear out the observations of Professor Lindley before referred to, as to the identity of the calyptra, the operculum and the peristome with ordinary leaves: but it is not so clear that the theca is to be considered as the hollowed out apex of the stem. On the contrary, Mr. Quekett's opinion was, that it is formed by the united edges of the carpellary leaves; and he concluded by adducing some instances in other plants in corroboration of this supposition.

Mr. Varley exhibited and described a new form of microscope, which was said to possess all the contrivances found requisite for any instrument; and that many of the defects of other forms had been more or less obviated. The principal novelty in this microscope was a stage composed of one plate, being made to move on the surface of a fixed plate by means of a lever: this arrangement being admirably adapted to watch the movements of living creatures when submitted to magnifying powers. To effect this object, Mr. Varley had the moveable plate connected with the fixed one by guides furnished with ball and socket joints, which allowed it a perfect freedom of motion in all directions, of a smooth and uniform character. Considerable ingenuity was displayed in the several contrivances of this microscope, which was capable of having Mr. Varley's Graphic Telescope applied, for the drawing of objects in the field of the microscope.—*J. W.*

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ART. CLXXX. -- *Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

My friend Mr. Janson and myself crossed from Brighton to Dieppe on the 13th of May, 1843. On the following day we walked to Arques, about four miles distant, where there are the ruins of a noble old castle, and a fine fragment of a church. We walked along the valley and returned over the hills, without much botanical success. *Mespilus germanica* and *Chærophyllum sativum* occur near houses, and are perhaps neither of them truly wild. *Arenaria tenuifolia*, *Erodium moschatum* (in the village of Arques), *Sambucus Ebulus* and *Fedia carinata*, were the only plants that would be considered at all rare in England. The latter is much more common on this side of the water than *olitoria*, which perhaps is a little later in its time of flowering. The chalk peeps out here and there on the slopes of the hills, but is generally covered with a thick layer of clay and flint, or with some of the beds of the plastic clay.*

In the 'Flore de la Normandie' *Pisum maritimum*, *Sedum dasycphyllum* and *Veronica verna*, are said to grow at Dieppe; I saw none of them. Nothing is given at Arques, but the forest, abounding in beech trees, stretches a long way on the crest of the hills opposite to the castle, and ought to furnish something to the botanist. I would hardly recommend him, however, to spend his time at Dieppe, if he meditate a more extensive excursion.

* On returning to Dieppe at the end of August, I crossed the river at Dieppe, and walked by St. Martin to the forest of Arques, returning through Arques. This lengthens the walk, but gives a pleasing variety. We coast at first a salt marsh, but I saw there no rarity. *Cirsium oleraceum* grows at St. Martin. On the chalky banks at the edge of the forest, and also at Arques, I observed, very unexpectedly, *Parnassia palustris*. A Gentian, which I at first took for a large-flowered variety of *Gentiana Amarella*, but which I now believe is *G. germanica*, grows on the chalk, *G. campestris* on the plastic clay. *Daucus hispidus* of DeCandolle is common, but it is the same plant which we find on the chalky coasts of Kent and Sussex. The vegetation about Dieppe is very like that of the opposite coast, and has none of the plants which give so marked a difference to the Botany of the neighbourhood of Paris.

On the 15th we proceeded to Rouen by a diligence, which took us there in four hours and a half: some years ago this journey occupied seven hours. The rain almost confined us to the city for that and the two following days. *Bromus tectorum* and *Linaria supina* are common on the walls, and on the slopes of the hills there is abundance of *Sesleria cærulea*. It is curious to see a plant which is common on the limestone of the north of England, but which does not occur on our chalk hills, so plentiful in such a situation. *Barkhausia taraxacifolia* is plentiful on the hill meadows. Two forms of *Polygala* occur on these hills; one, which is the *P. amara* of the 'Flore de la Normandie,' *P. amarella* of Cosson et Germain, 'Plantes Critiques des Environs de Paris,' forms a rosette of larger leaves at the base of the flowering branch. This rosette, however, consists only in an approximation of a certain number of the leaves, and takes place in a greater or less degree, so that we sometimes find it difficult to decide whether it exists or not.

On the 18th Mr. Janson was obliged to leave me, and I walked, after his departure, to the woods and chalky banks beyond Canteleu. The forest of Roumare here stretches over the wide summit of a range of hills, generally on a soil of flint and clay; and offered to me *Mespilus germanica*, *Monotropa Hypopitys*, *Colchicum officinale*, *Melittis Melissophyllum*, *Convallaria multiflora* and *Viola lactea*. On the immediate crest of the hills, where the soil is almost wholly composed of flints, I observed *Cornus mascula*, *Prunus Mahaleb*, *Aquilegia vulgaris*, *Helleborus fœtidus* and *Convallaria Polygonatum*. Upon the rough chalky banks below the wood, grow *Verbascum Blattaria*, *Teucrium Chamædrys* and *Veronica Teucrium*, whose compact masses of bright blue flowers render it a much more conspicuous plant than *V. Chamædrys*. Here also we meet with *Anemone Pulsatilla*, *Euphorbia Gerardiana*, *Globularia communis*, *Satyrion hircinum* and *Orchis fusca*. I had expected to find several of the Orchises allied to this latter species in the neighbourhood of Rouen, and I was desirous of observing the variations in the form of the lip; in this walk, however, I met only with *O. fusca*, and that but in one spot. They appear to grow in patches of small extent, which are scattered here and there in or below the woods, and a botanist who does not hit exactly upon the place, may be within a hundred yards of a considerable number of them without being aware of it. I have given (Phytol 789) an outline of the three principal forms which occurred to me, in the lip of *Orchis fusca*; the narrowest I believe to be the *O. militaris*, and *O. galeata*

of the Parisian botanists; Koch's *O. militaris* is probably the same as that of the 'Suppl. to Eng. Bot.' t. 2675. *O. variegata* has been said to have been found near Rouen, but this appears to be erroneous. Other plants which I observed in this walk were *Lithospermum purpureo-cæruleum*, in a lane below the church at Canteleu; *Fedia carinata*, *Linaria supina*, *Bromus tectorum* and *Geranium rotundifolium*, almost everywhere. *Sedum album* was not unfrequent on the walls, and *Aristolochia Clematidis* by the side of the lower road from Rouen to Canteleu. In all this walk the scenery is delightful, commanding the valley of the Seine, and a rich variety of wood and cultivation,—fertile plains, and steep and broken banks, and the Seine winding among them and giving life and spirit to the whole.

On the 19th I went in an omnibus to Darnethal, a manufacturing town about a league from Rouen. These omnibuses, or *gondoles* as they are here called, run every half hour. Two valleys unite at the lower part of the town; I took that to the right, and then ascended the hills on the left, where, on some rough uncultivated ground below the woods, I had on a former occasion, in company with my friend T. Corbyn Janson, found abundance of *Orchis odoratissima*. It is a late *Orchis*, closely resembling *O. conopsea* in its general appearance, and this time I failed to identify it. Hereabouts, too, I think we found *Stachys alpina*: *Anemone Pulsatilla* and *Stachys recta* are very abundant. *Tilia parvifolia*, *Pyrus torminalis* and *Mespilus germanica* are found in the woods, but the two latter seem rather shy of flowering. *Luzula Forsteri* grows here, almost to the exclusion of *L. pilosa*; *Phyteuma spicatum* and *Convallaria majalis* are in considerable abundance. Passing through these woods, and a cultivated tract through which runs the road to Gournay, I again entered the forests, and, in a hollow, found a large plot of intermixed *Orchis fusca* and *O. militaris*. When I speak of *O. militaris*, I mean a plant with pale purplish-grey acuminate sepals, like those of *O. Simia*, but with a broader lip, which is always rough with little tufts of short purple hairs. I have sketched (fig. 4, 5, 6, p. 789) some of the lips of the *O. militaris* here found, one of which is very remarkable, as the two upper lobes, the arms of the monkey, are entirely wanting. On the same bank grew *Euphorbia dulcis* and *Cineraria integrifolia*, which here, drawn up in the woods, has an appearance very different from that which it assumes upon the downs of Sussex.

On the recommendation of M. Pouchet, Professor of Botany, I went on Saturday to the hills rising from the Seine above Rouen. I did not go far enough to reach the Rocks of St. Adrien, which are chalk

cliffs, and the station of some very rare plants. The steep slopes in this direction seem to be the driest of any about Rouen, and they are everywhere open and accessible. I here added to my list *Iberis amara*, *Eryngium campestre*, *Caucalis daucoides*, *Ophrys apifera* and *aranefera*, *Orchis viridis* and *Epipactis grandiflora*.

In a little wood on the right hand side of the ascent to Belbœuf, there was a considerable quantity of *Orchis fusca*. *Digitalis lutea* I had seen in the walk at Canteleu, but till I here saw some of the dead flower-stalks of last year, I did not comprehend what it was. *Rosa sepium* is common on the chalky banks: it is very glandular and fragrant, but I could not find any mixture of setæ among the prickles. *Helianthemum marifolium* makes some of the driest banks quite splendid with its brilliant flowers. This is at least the *H. marifolium* of the 'Flore de la Normandie,' but I give it on the authority of Mr. Gay that the French species described under that name is universally *H. canum*, *H. marifolium* being a Spanish plant, which is not found in France, nor perhaps in Italy. *Calendula arvensis* grows on some of the driest slopes — a hint perhaps that the vine would succeed there, as they are almost inseparable companions.

On the 22nd I went to Maromme, but I ought to have proceeded to Malonnaise, where there are some promising banks and woods, and to which place there is an omnibus every morning at 7. The clerks and employés at the manufactories about Rouen reverse the London practice, and after spending the day in the surrounding villages, return to the city to sleep. These omnibuses are numerous at Rouen, and besides a steam-packet for Havre, there is a spacious one for La Bouillé, a few leagues down the Seine, and a smaller one up the river to Paris. We may now add the rail-road, on which the botanist might go to Tourville, and return on foot by the banks and woods of St. Adrien as far as Mivoie, where at 5 o'clock he would find a gondole for Rouen.

There are two or three places down the Seine where there are turf-bogs, and a considerable one near Jumiege is said to be rich in plants; but a wet May is not tempting for bog Botany.

After my walk to Maromme I got on to the railroad at 3 o'clock, and arrived at Mantes at half-past 5.* The hills here are less high

* Vernon would be a better place to stop at, but I did not know this at the time. On my return I did stop there, but I was still lame from the effects of a fall in the forest of Fontainebleau, and could not walk far. However, I managed to ascend the hill of St. Catherine, on the north side of the Seine, where I observed *Teucrium montanum*, *Ononis Columnæ* and *Astragalus monspeliensis*.

and less bold than at Rouen, and the little patches of varied cultivation on their slopes look like strips of carpet. The hills to the north of the river are said to yield the best Botany; I unfortunately took a different direction. I noticed *Melampyrum arvense* and *cristatum*, both now in flower; *Ajuga Chamæpitys* and *genevensis*, *Astragalus glycyphyllos*, *Hypericum montanum*, *Alyssum calycinum*, *Camelina sativa* and *Quercus pubescens* (the segments of the leaves are narrower and deeper than in *Q. sessiliflora*). *Verbascum pulverulentum* and *Salvia pratensis* become now exceedingly common. *Muscari comosum* is also abundant, but *M. racemosum* seems to be already over. *Fumaria Vaillantii*, *Iberis amara*, *Herniaria glabra*, *Thlaspi perfoliatum*, *Triticum Nardus*, *Poa bulbosa*, *Potentilla verna*, *Orchis fusca*, *Ophrys apifera*, and *Prunus Mahaleb* also occur. In the Bois de la Butte verte, besides many plants usually found in a sandy soil, I noticed *Tillæa muscosa*; and in a clayey bottom, hardly more than a



Fig. 1, 2, 3. *Orchis fusca*. Fig. 1 is probably the *O. militaris* and *O. galeata* of the Parisian botanists.
 Fig. 4—8. Different forms of *Orchis militaris*. In fig. 5 the upper lobes of the lip are absent.
 Fig. 9, 10. *Orchis Simia*. Fig. 11. A supposed variety of *O. Simia*.

league from Mantes, *Orchis militaris* (fig. 7, 8), and *O. Simia* (fig. 9). Fig. 7 seems to approach the nearest to the figure in 'English Botany,' (t. 2675); *O. tephrosanthos* of that work (t. 1873, the *O. macra* of Lindley), I should say is most like fig. 11 hereafter to be noticed, but

which I am disposed to consider a variety of *O. Simia*. I may here observe that Bicheno refers this figure to *O. militaris*, and not to his *tephrosanthos*. In the specimens of *O. Simia* the lip was in general quite smooth, but in some there were a few small tufts of red hairs at the base. I should characterise the three species thus : —

- O. fusca*. Sepals rather obtuse, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, rough with tufts of red hairs ; lower lobes broader and shorter than the upper. Bracts minute.
- O. militaris*. Sepals acuminate, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, *rough with tufts of red hairs* ; lower lobes broader and shorter than the upper. Bracts minute.
- O. Simia*. Sepals acuminate, connivent, united at the base. Lip pinnately 4-lobed, with an intermediate point, *generally quite smooth* ; all the lobes linear and similar. Bracts minute.

Lindley, and after him Hooker and Babington, say that the English plant is not the *O. tephrosanthos* of Villars. Villars says of his plant that it is more like *Ophrys anthropophora* than like an *Orchis*, I suppose he means in this comparison to except the spur. I know of no plant to which such an observation would apply, nor can I understand his *Orchis militaris*, where the “ thighs ” are longer as well as broader than the arms. The three other species of this division of the genus — *O. longibracteata*, *O. undulatifolia* and *O. variegata*, have bracts longer than the germen.

I went from Mantes to Houdan, in hopes of getting a ramble in the forest of Rambouillet, which advances to within a league of that place ; but the rain, if it did not absolutely hinder, very much limited my exertions. One does not like to wade mid-leg in the water merely to see whether a place looks promising, though one would not mind doing it for a rare plant in view : even the wet bushes appal us when in a state of uncertainty. My plants were *Knappia minima*, *Agrostis setacea*, *Alopecurus bulbosus*, *Hypochæris glabra*, *Mentha rotundifolia*, *Hieracium Auricula*, *Tragopogon pratense*, with the rays nearly twice as long as the calyx ; *Seseli montanum*, *Adonis æstivalis*, *Genista pilosa*, *Scorzonera humilis*, *Myosurus minimus*, *Veronica verna* and *Cirsium anglicum* of DeCandolle ; how far *C. bulbosum* and *C. pratensis* of the same author are distinct from this plant, may admit of question.

The accommodations at Houdan (les Trois Fils d'Amon) are not very good, but the greatest defect was the want of attention. I had on my arrival a long while to wait in the kitchen before I could even get an answer to a question, and still longer before I could get my luggage taken up stairs: and when I came away, the servant was, with great difficulty, induced to bring my trunk down stairs, but left it at bottom, with "Voila votre malle, Monsieur," and would not bring it any further.

I had been assured at Mantes that I should find at Houdan conveyances for Rambouillet and for Chartres: I found neither, and therefore took my place in the evening for Dreux. The best hotel — the *Paradis* — was full, and I took up my quarters at the Saumon, which is not bad. The next day, May 25, I walked to the forest of Dreux, which offers some fine chalky banks towards the Eure, but internally is an unproductive plateau. Here again I saw *Orchis fusca*, which is evidently the most common of the tribe; *O. hircina* was abundant. The other plants were: —

<i>Anchusa italica</i>	<i>Peucedanum Oreoselinum</i>	<i>Silene nutans</i>
<i>Pulmonaria angustifolia</i>	<i>P. parisiense</i>	<i>Holosteum umbellatum</i>
<i>Salvia Selarea</i>	<i>Isatis tinctoria</i>	<i>Sambucus Ebulus</i>
<i>Orobanche cruenta</i>	<i>Sisymbrium Irio</i>	<i>Gnaphalium arvense</i>
<i>Crepis biennis</i>		

Helianthemum pulverulentum was abundant and in great beauty: this seems to me hardly distinct from *H. apenninum*, nor do I know how to separate it from *H. polifolium*, at least my specimens of *H. polifolium* from Brean down seem in all respects the same plant. After my walk I went to look at the new chapel which the King is now building as a mausoleum for himself and his family. With some beautiful bits of Gothic and a splendid general effect, it is nevertheless the strangest thing which can be imagined, and much more whimsical than beautiful.

At 6 o'clock the next morning I set out for Chartres. Nothing can be more interesting than the magnificent cathedral of that city, or less so than the country about it, especially as I saw it under the influence of a continued mizzling rain. At half past 2 I started for Angerville, where I had to wait at the station nearly two hours for the arrival of the train from Paris, with rain so incessant, and a road so deep in clay that I did not venture into the village. The country all the way from Chartres to Orleans is as dull and monotonous as possible: we traverse for some distance the forest of Orleans.

On the 29th I walked to Ingré and the forest beyond it. The hill

on which Ingré stands is sandy at the base and clayey at top; the stratum of clay contains, in other places, beds of a soft calcareous stone. *Orchis hircina* here grows upon the sand, being less particular, in a warmer climate, in its choice of soil than it is with us or in Normandy. *Thlaspi perfoliatum*, *Holosteum umbellatum* and *Bromus tectorum* are no longer confined to walls and dry banks, but descend into the cultivated land. The other plants were: —

<i>Carum Bulbocastanum</i>	<i>Fumaria parviflora</i>	<i>Hypochoeris maculata</i>
<i>Bupleurum rotundifolium</i>	<i>Campanula Speculum</i>	<i>Artemisia campestris</i>
<i>Neslia paniculata</i>	<i>Dianthus prolifer</i>	<i>Ornithogalum umbellatum</i>
<i>Erysimum orientale</i>	<i>Silene conica</i>	<i>Veronica triphyllos</i>

On the 30th I called by appointment, at 7 o'clock, on M. Jullien, and we set off, accompanied by the *premier garçon* of the botanic garden and a lad with him, to St. Cyr en Val. We did not reach the village till near 12, although only about six miles from Orleans; but my companions were not well acquainted with the grasses and *Cari-ces*, and found fully as much to do as myself. Beyond St. Cyr is a little valley, if so slight a depression may deserve the name, at first presenting barren banks and pieces of woodland, and becoming afterwards boggy; and we passed over heaths and through woods on our return, the country being everywhere nearly flat. Our plants were:—

<i>Madia sativa</i> , the relic of cultivation	<i>Scutellaria hastata</i>	<i>Vicia lutea</i>
<i>Chondrilla juncea</i>	<i>Anarrhinum bellidifolium</i>	<i>Trifolium ochroleucum</i>
<i>Hieracium Auricula</i>	<i>Linaria Pelisseriana</i>	<i>Vicia lathyroides</i>
<i>Lithospermum arvense</i> , flo.	<i>Pinguicula lusitanica</i>	<i>Lupinus tenuifolius</i>
<i>Stachys germanica</i> [roseo	<i>Veronica acinifolia</i>	<i>Lathyrus angulatus</i>
<i>Brassica Cheiranthus</i>	<i>Scleranthus perennis</i>	<i>Aristolochia Clematidis</i>
<i>Turritis glabra</i>	<i>Lobelia urens</i>	<i>Orchis laxiflora</i>
<i>Herniaria hirsuta</i>	<i>Astrocarpus sesamoides</i>	<i>Carex ericetorum</i>
	<i>Helianthemum umbellatum</i>	C. Schreberi

Before returning to Orleans we visited the source of the Loiret; it is a nearly circular basin at the foot of a woody bank, in which the spring boils up with considerable force, and forms at once a river, which, after a quiet course of a few miles, joins the Loire. It is a charming spot, well shaded with fine trees, and breathing sweetness and repose. In this walk (which exceeded twenty miles) the want of ferns in situations apparently very favourable to them, was very striking. We saw only two or three of the most common species, and not many plants of those. This, I apprehend, is the most eastern habitat known for *Pinguicula lusitanica*.

The next day we had a ramble in the forest of Orleans, but besides that we had anticipated many of the plants, the ground in this direction is not so favourable for Botany. We examined a large shallow pond, where the gardener Aubin thought he had found *Carex hordeistichos*, the year before but we sought for it in vain. A curious variety of *Cirsium anglicum*, if it be not rather a species, grows here, the stem being much more leafy than in the usual state of the plant.

Cirsium anglicum is the *Cnicus pratensis* of our British botanists, the latter generic name having been taken from Linnæus, the former from Tournefort; and the name *Cnicus* being thus at liberty, De Candolle has appropriated it to the *Centaurea benedicta*, which was called *Cnicus* by Vaillant, and by Linnæus in the first edition of the 'Species Plantarum.' With regard to the trivial name the matter is more intricate. Linnæus has a *Carduus dissectus* growing in France and England, which is lost if it be not this plant. Hudson consequently called it at first *C. dissectus*, but afterwards adopted the name of *C. pratensis*. *Cirsium anglicum* is a name of Ray, adopted by Lamarck. I will not here attempt to trace the limits or the synonymy of this species, *tuberosum*, *bulbosum* and *pratense* of DeCandolle, observing, however, that if *tuberosum* and *bulbosum* be the same plant, the former name is to be preferred, as the root is strictly tuberous, and not bulbous. Smith says that the root is creeping in *C. tuberosum*, and not in *pratensis*. It is certainly creeping in the plant before us, but I suspect that it is so, more or less, in his *C. pratensis*. We noticed *Euphorbia dulcis*, which I had not seen since I left Rouen, and one or two specimens of *E. Lathyris*; also *Erica scoparia*, *Melampyrum cristatum*, *Arnica montana*, *Inula salicina* and *Festuca heterophylla*: I have not made up my mind as to whether this *F. heterophylla* be the same as our *F. duriuscula*. I have never seen it except in woods, and the slender culms, and numerous, very long, capillary root-leaves give it a very different appearance. *F. duriuscula* of the French botanists is a variety of *F. ovina*.

From Orleans I proceeded in a steam-boat down the Loire to Blois, and on Friday morning, in company with one of my companions in the packet, visited the Chateau de Chambord, a magnificent and very curious palace of Francis I. There are four large round towers at the angles of the principal building, which rather promise some fine apartments within, but they are cut up into little rooms. Heavy rains afterwards prevented all but a short walk to a place on the south side of the Loire, which sometimes receives its overflowings. *Glaucium luteum* has here established itself; and I noticed *Medicago minima*,

Senecio viscosus, *Scrophularia canina*, *Cynoglossum pictum* and *Triticum Poa*.

On the 3rd of June I visited the forest of Blois, but with little success; it seems to be of a clayey soil, with some mixture of flint, occupying an extended and nearly level hill-top; yet some of the little streams appeared to be permanent, though greatly swelled by the heavy rains. The large variety of *Monotropa* grows here among the roots of the hornbeam. We also find *Euphorbia stricta* and *esula*, *Linaria striata*, *Crepis pulchra* and *Lamium maculatum*, between the forest and the river. The botanists of Orleans contend that the latter plant is a distinct species, and call it *L. hybridum*: it has larger flowers than the common form, and is altogether a handsomer plant, but I see no specific difference. *Orchis laxiflora* and *hircina* are not uncommon about Blois. Just by Blois, in ascending the Loire, is a steep bushy bank, which is rich in plants, and from the charming views over the valley, would afford a delightful lounge in fine weather. The plants I there observed were:—

<i>Orobanche cærulea</i>	<i>Potentilla verna</i>	<i>Ornithogalum pyrenaicum</i>
<i>O. epithymum</i>	<i>Micropus erectus</i>	<i>Muscari racemosum</i>
<i>O. amethystea</i>	<i>Valeriana rubra</i>	<i>Ophrys aranifera</i>
<i>Linum tenuifolium</i>	<i>Centrophyllum lanatum</i>	<i>Orchis hircina</i>
<i>Prunella laciniata</i>	<i>Medicago orbicularis</i>	<i>Phleum Boehmeri</i>
<i>Stachys recta</i>	<i>Bupleurum aristatum</i>	<i>Ceterach officinarum</i>

I was told at Orleans that I should find a rich harvest in the neighbourhood of Vendôme;—that the ground was *très accidenté*, and abounded in favourable situations. To Vendôme therefore I went, in one of the diligences which run every day between that town and Blois; and after breakfasting at the Hotel de St. Louis, which is an excellent one, set off to find the botanic garden. I was positively assured at the inn that there was neither garden nor Professor;—there are both. The garden, however, is only a little piece of ground at the back of the college, and the Professor—M. Julliard—was unfortunately at Blois. I did not regret this much at the time: the Professors at these smaller establishments in France, are often men who attend to little beyond the circuit of lectures they have to give, or at any rate who interest themselves but little in the Botany of the neighbourhood; but I afterwards learned that M. Julliard is a good and zealous botanist, and well acquainted with the plants of the country,—a kind of knowledge particularly valuable to a stranger. From the college I set out to find the gardener, who works at other places as well as at the botanic garden; and not finding him at home, left word for him to call on me, either at his dinner-hour (2 o'clock), or in the

evening, and meanwhile I walked about the castle, where I observed *Salvia Sclarea* (not in flower), *Medicago apiculata* and *Ophrys apifera*, and afterwards to a piece of wood and barren ground, which I had noticed from the road, which yielded only *Cirsium anglicum*, *Globularia vulgaris* and *Ornithogalum pyrenaicum*. In the evening my man did not make his appearance; but as he had been recommended to me for his knowledge of localities, and was the only person to whom I could apply, I returned to seek him. I found him in bed, his wife said he was ill, but he only acknowledged to being tired. He was, however, quite willing to talk and to display his own knowledge, and began to catechise me about mine. He boasted of his acquaintance with the grasses and Cyperaceæ, and gave me to understand that he had no small knowledge of mosses. We made however our arrangements for the next day.

I hired a cabriolet for six francs, and we set off at about half past 7. There is a diligence for Montoire at half past 12, but I thought it would not do to lose so much time. We breakfasted at Montoire and looked over the old castle, and then rambled among hanging woods, steep banks and chalk-like rocks, as far as Lavardin, where there are the picturesque ruins of another old and extensive castle. I seldom have traversed a more promising tract, but the performance was by no means equal to the promise. Of the Orchideæ I observed *Ophrys muscifera*, *apifera* and *aranifera*, *Orchis fusca* pretty abundant, *O. Simia* was also plentiful near Lavardin, but it is to be observed that though the form was completely that of *Simia*, the labellum was invariably rough. There were also *Phyteuma spicatum* (blue flowered), *Stachys alpina*, *Lithospermum purpureo-cæruleum*, *Orobis niger* and *Hieracium murorum*.

Before leaving these banks a heavy rain came on, and we afterwards lost our way in the marshy meadows. *Trifolium parisiense* was here abundant, but nothing else which I have not already noticed. We then passed to Les Roches, where there are some broken chalky cliffs rising from the Loire, but the continued rain made the banks so slippery that we could hardly keep our feet. *Campanula persicifolia* and *Isatis tinctoria* were the rarest plants; *Orchis hircina* is very abundant. My guide knew generally that the banks between Montoire and Lavardin, and the rocks at Les Roches, were the places in which the plants were mostly to be sought, and this any botanist would see at once from the aspect of the country, but beyond this he was totally ignorant, and his boasted knowledge of plants gradually dwindled away into very insignificant limits.

On the 7th I walked towards Colommiers on the recommendation of my guide of the day before, as the best ground in the neighbourhood of Vendome; and the ground is good, consisting of slopes on the margin of a wood in a calcareous soil, but I did not add anything. I was told at Vendome that a M. Monin, a physician at Blois, was a very good botanist; to Blois therefore I returned, and soon made acquaintance with him. We went together the next day to the wood of Russy, chiefly to look after *Isopyrum thalictroides*. A steep bank of small elevation descends from the wood towards the meadows, which, like most of those occupying the valleys in France, are quite flat and somewhat marshy. In moist places at the foot of this slope was the station of the *Isopyrum*, but a new road has been made (not yet finished) along this very bank, and has cut away one half of it, and covered up the other with the rubbish, and the *Isopyrum* was not to be found. *Erica scoparia*, *Ranunculus nemorum*, *Scorzonera humilis* and *Centaurea Jacea* were the fruits of our walk, and I found a curious irregular specimen of *Orchis militaris* (or of *Simia*), with the limbs variously united to the body, (fig. 11, p. 789).

On the 9th I set out alone, the rain having delayed M. Monin, and went to a windmill which he had pointed out to me near St. Gervais. I botanized there in spite of the frequent and heavy showers, and noticed *Globularia vulgaris*, *Cynanchum vincetoxicum*, *Geranium lucidum*, *Helianthemum apenninum*? and *H. pulverulentum*. *H. Fumana* is said also to grow there, but I did not observe it. There is a little wood close by, which seems rich in the usual calcareous plants of the country.

On the 10th I engaged a place in the voiture which goes from Blois to Romorantin, and was to have met M. Monin at a place called Les Granges, but my driver knew nothing of Les Granges, though he had professed to be acquainted with it, and carried me beyond it, so that we missed each other. The country of this day's excursion is called Sologne, and is a curious feature in the surface of France. The ground seems to descend gradually all the way from Normandy to a considerable distance south of the Loire, so that the hills, which about Rouen are 500 or 600 feet high, become less and less, till a height of 30 or 40 feet forms a marked eminence. The whole surface in Sologne is sandy and gently undulating, and, from its low position, is generally moist in the bottoms. *Sedum villosum* grows among the corn, and *Illecebrum verticillatum* on the road-sides. It seems to be well worth visiting from its peculiarity, and from its botanical productions, as it offers many rare plants, and I should have done well to

have gone to Romorantin, and to have spent two or three days there and at Salbris, in the very depths of Sologne. The maps mark a multitude of triangular pools, and in the winter, and even at the time I was there, these exist. A dam is made across one of these hardly-marked valleys, and the water collects there, but in summer you may traverse most of them in any direction without getting wet. *Asphodelus albus* is said to be abundant in some parts, and this is about its most northern station; it is also probably about the most southern station, independent of mountains, for *Myrica Gale*. The plants that I observed were not numerous; besides the two already mentioned, *Sedum* and *Illecebrum*, they were:—

<i>Astrocarpon sesamoides</i>	<i>Arenaria segetalis</i>	<i>Lathyrus angulatus</i>
<i>Tillæa muscosa</i>	<i>Astrolobium ebracteatum</i>	<i>Vicia lutea</i>
<i>Trifolium subterraneum</i>	<i>Avena tenuis</i> ?	<i>Juncus capitatus</i>
<i>Scirpus maritimus</i>	<i>Spergula subulata</i>	

After these excursions I returned to Orleans, whence I made an unproductive trip to the Pont de Segris. Our principal object was to get an *Anchusa*, which M. Jullien supposed to be the *altissima* of Desfontaines: they had a plant of it in the garden. I suspect it will prove a variety of *A. italica*, but we found only the common form of *A. italica* in this station. The almost continued rain was, however, very discouraging. From Orleans I proceeded to Paris.

To keep the form of a journal in the various walks and little trips that I made during a residence of six weeks in Paris and in its neighbourhood, would occasion a number of useless repetitions: I shall therefore begin by giving a list of those plants which are marked with a C (*commun*) variously modified in the Catalogue published by Cosson, Germain and Weddel, but which are rare or unknown in England, and therefore interesting to an English botanist; and thence proceed to state, as far as my experience goes, what more may be expected in various excursions in the neighbourhood.

<i>Anemone Pulsatilla</i> . Sandy hills.	<i>Sisymbrium Irio</i> . Walls and banks.
<i>Adonis æstivalis</i> . Sandy fields.	<i>Erysimum cheiranthoides</i> .
<i>Myosurus minimus</i> . Ditto	<i>Brassica Cheiranthus</i> . Sandy woods.
<i>Helleborus fœtidus</i> . Dry banks.	<i>Diploxix viminea</i> . Fields.
<i>Nigella arvensis</i> . Sandy fields.	<i>Alyssum calycinum</i> . Dry fields & banks
<i>Delphinium Consolida</i> . Ditto.	<i>Thlaspi perfoliatum</i> . Dry fields.
<i>Fumaria Vaillantii</i> and <i>parviflora</i> . Ditto.	<i>Iberis amara</i> .
<i>Nasturtium officinale</i> , var. <i>β. siifolium</i> .	<i>Lepidium graminifolium</i> .
Ditches?	<i>Isatis tinctoria</i> . Sandy woods.
————— <i>syvestre</i> . Sides of the river.	<i>Helianthemum guttatum</i> . Sand.
<i>Barbarea arcuata</i> .	<i>Parnassia palustris</i> . Springy ground.
<i>Turritis glabra</i> . Sandy woods.	<i>Polygala depressa</i> . Ditto.

Gypsophila muralis. Sandy fields.
Dianthus prolifer. Everywhere.
 ——— *carthusianorum*. Dry banks.
Silene nutans. Woods.
 ——— *Otites*. Sandy fields.
 ——— *conica*. Everywhere.
Arenaria tenuifolia, *β. viscidula*. Fields.
Holosteum umbellatum. Walls &c.
Linum tenuifolium. Dry slopes.
Malva Alcea.
Hypericum dubium.
Oxalis stricta. Moist cultivation.
Genista sagittalis.
Medicago sativa.
 ——— *falcata*.
 ——— *minima*. Sandy slopes.
 ——— *apiculata*. Fields.
Melilotus arvensis. Fields and banks.
Trifolium parisiense. Moist meadows.
Tetragonolobus siliquosus. Moist places.
Astragalus glycyphyllos. Woods.
Coronilla varia. Ditto.
Vicia gracilis, *tenuifolia* and *lutea*.
 Fields.
 ——— *lathyroides*. Dry slopes.
Lathyrus Aphaca and *tuberosus*. In
 fields.
Cerasus Mahaleb.
Fragaria elatior. Woods.
Potentilla verna. Dry ground.
Rosa sepium. Ditto.
Sorbus domestica.
Oenothera biennis. Sandy ground.
Lythrum hyssopifolium.
Portulaca oleracea.
Herniaria glabra and *hirsuta*.
Crassula rubens. Dry banks.
Sedum cepæa. Ditto.
 ——— *album*. Banks and walls.
Eryngium campestre.
Bupleurum falcatum.
Oenanthe Lachenalii and *peucedanifolia*.
Seseli montanum.
Selinum caruifolium. Boggy woods.
Peucedanum parisiense & *Oreoselinum*.
 Woods.
Caucalis daucoides. Fields.
Lonicera Xylosteum.

Erigeron canadense. Sandy ground.
Inula britannica. River banks.
 ——— *salicina*. Moist woods.
Filago gallica and *arvensis*. Fields.
Gnaphalium luteo-album.
Artemisia campestris. Sandy ground.
Anthemis arvensis.
Senecio paludosus. Seine and Marne.
Calendula arvensis. Vineyards &c.
Cirsium oleraceum. Moist shade.
Centaurea Jacea. Meadows.
 ——— *lanata*. Dry slopes and banks.
Scorzonera humilis. Moist woods.
Podospermum laciniatum. Banks.
Chondrilla juncea. Ditto.
Lactuca Scariola and *Saligna*. Ditto.
Barkhausia foetida and *taraxacifolia*.
Crepis biennis and *tectorum*.
Hieracium Auricula.
Prismatocarpus Speculum. Fields.
Campanula persicifolia. Woods.
 ——— *Rapunculus*.
Cynanchum vincetoxicum.
Villarsia nymphæoides. Seine, Marne.
Gentiana Pneumonanthe.
Heliotropium europæum. Dry places.
Echinospermum Lappula. Walls.
Pulmonaria angustifolia. Woods.
Myosotis stricta. Woods.
Solanum nigrum, var. *ochroleucum*.
Physalis Alkekengi.
Lycium barbarum.
Verbascum Schraderi. Banks.
 ——— *pulverulentum*.
 ——— *Blattaria*. Woods.
Linaria stricta and *supina*.
Veronica Teucrium. Sandy woods.
 ——— *spicata*.
 ——— *triphyllus*.
Melampyrum cristatum. Sandy woods.
 ——— *arvense*. Fields.
Rhinanthus glaber?
Orobancha Epithymum, *Galii*, *Eryngii*,
 and *ramosa*. Occasionally.
Mentha rotundifolia. Moist banks.
 ——— *sativa*.
Salvia pratensis.
Melittis Melissophyllum. Woods.

Fedia carinata and *auricula*. Fields.

Stachys germanica. Borders.

—— *annua*. Fields.

—— *recta*.

Leonurus Cardiaca.

Ajuga genevensis. Sandy ground

Teucrium Botrys. Fields.

—— *Chamædrys*. Slopes & banks.

Centunculus minimus. Moist sandy ground.

Statice Plantaginea. Sand.

Plantago arenaria. Ditto.

Amaranthus sylvestris, *Blitum* & *retroflexus*. Waste ground.

Chenopodium glaucum. Ditto.

—— *hybridum*.

Atriplex oppositifolia and *hortensis*, *β. microsperma*.

Rumex maritimus

Polygonum mite and *dumetorum*.

Aristolochia Clematitis.

Euphorbia stricta. Fields.

—— *dulcis*. Woods.

—— *Gerardiana*. Dry woods.

—— *Cyparissias*. Banks &c.

Salix hippophaëfolia.

Alisma Damasonium.

Najas major.

Orchis fusca, *Jacq.* Woods.

—— *laxiflora*. Moist meadows.

Orchis chlorantha.

Lamium incisum and *maculatum*.

Ophrys aranifera, 6; *arachnites*, 7, 8.

Asparagus officinalis. Sandy woods.

Convallaria Polygonatum and *multiflora*. Woods, 5.

Ornithogalum pyrenaicum. Wdy. slopes.

—— *umbellatum*. Fields.

Scilla autumnalis. Sandy woods.

Allium sphærocephalum.

—— *oleraceum*. Cultivated.

Muscari comosum and *racemosum*.

Juncus Tenageia. Moist sandy places.

Cyperus fuscus.

Heleocharis uniglumis and *acicularis*. Marshy edges of ponds.

Carex tomentosa.

Cynodon Dactylon.

Digitaria sanguinalis.

Panicum Crus-galli.

Setaria verticillata and *viridis*.

Phleum Boehmeri.

Knappia minima.

Aira uliginosa, only two places quoted, perhaps the C is an error.

—— *canescens*. Sandy banks.

Poa bulbosa.

Bromus arvensis. Banks.

—— *tectorum*. Walls and banks.

Chara flexilis and *translucens*.

My first excursion was to Charenton, on the 17th of June, and I visited that place again on the 23rd of July, in company with M. de Jussieu and his party, but in the latter case it was very wet weather. Taking the voiture for Charenton, the botanist will get out at the bridge, and crossing it, will proceed to that over the Seine, which he will not cross. A little above this, on the right bank of the Seine, I gathered *Sisymbrium supinum*, a plant which was much more plentiful formerly than it is at present, the efforts of Parisian botanists having nearly succeeded in destroying it. He will then return and cross the Marne in a boat, just above the bridge, to one of the islands, and ascend the river: here, however, I obtained nothing but *Inula britannica*. On leaving the shore, the bank on the left of the road furnished *Anchusa italica* and *Orobanche amethystea*; but before this the greater part of the company were driven back by the rain. I proceeded

in company with M. Germain and two others, to the plain of La Varenne, a sandy flat forming the extremity of the peninsula of St. Maur, partly woody or waste and partly cultivated. Here we got *Polycnemum arvense* and *Trigonella monspeliaca*. Thence proceeding to St. Maur and entering the Bois de Vincennes, we find on the road to the gate of Nogent, abundance of *Carduus acanthoides* of the French botanists, growing amongst a quantity of *C. nutans* and *C. crispus* (the *acanthoides* of Smith), between which it seems to be a hybrid. In the same neighbourhood, on the side of a road a little more to the right, grow *Brassica Cheiranthus*, *Malva Alcea* and *Verbascum Blattaria*, and, a little further on, *Lathyrus tuberosus*. This part of the wood is very beautiful, commanding views over the valley of the Marne; and it is the only part which is so. Thence, crossing the wood to the gate of Fontenay, we take the road nearest to the wall of the wood leading to Vincennes, where we shall meet with *Scutellaria Columnæ* in abundance, *Silene catholica*, *Cucubalus baccifer* and *Tordylium maximum*. The two first are supposed to have been sown in this locality at some unknown period; and there are two or three other plants which I did not see, believed to be in the same predicament. Here also I observed a plant of *Ranunculus nemorum*, but whether there is more of it I do not know, for having gathered the plant lately in a much better state at Blois, I did not pay much attention to it. This walk, if not very productive of rare plants which are genuine natives, has the advantage of exhibiting a large portion of those which are more common in the vicinity of Paris. The water-side about Charenton, the dry slopes beyond, the sandy plain of La Varennes, and the wood of Vincennes, furnishing all the usual varieties of soil and situation. The botanist will meet with *Senecio paludosus*, *Delphinium Consolida*, *Nigella arvensis*, *Filago arvensis* &c., and later in the year with *Digitariae*, *Setariae* &c.

It seems hardly necessary to say anything of my Paris life, yet a few words may not be useless to a brother botanist who visits that city for the first time. I took up my lodgings at the Hotel des Etrangers, Rue Vivienne, where I paid three francs a-day for my room. This I believe is the usual price for a single well-furnished room on the second story or on the entresol, at the respectable inns in Paris. You pay besides for a wax candle, one of which lasted me for a fortnight; and would have to pay for a fire if you wanted one, and you are charged ten sous a-day for the servants. There are no other extras to make up a bill connected with the chamber, and the chambers in Paris are always fitted up as sitting-rooms; the bed occupying one

corner, or sometimes across. If you eat and drink in the hotel, you have a list of prices hung up in your room, so that you may know distinctly all your expenses. The servants usually expect, at least from Englishmen, a small additional present, but I found them well contented when I formed my calculation for this at five sous per day. There is a table d'hôte at half past 5, at four francs; but being not overburthened with money, I did not frequent it, since I could get a dinner which pleased me as well or better for half that sum. I usually went for my breakfast to the Café de la Place des Victoires, where I had one large cup, or perhaps rather basin, of coffee and milk, with bread and butter: this cost me one franc, including two sous to the waiter. I prefer this coffee-house, because they give the coffee in a larger cup than usual, without making it overflow. Those who wish for a more solid breakfast, will find it at the restaurateur's, for twenty-five sous. My dinner cost me two francs, a price for which you get a very good one at a great many of the Paris restaurateurs. I tried several, but the one I preferred was Tavernier's, in the Palais Royal. You have soup, or rather broth, wine, three dishes and a dessert, for your money. I added four sous for the waiters, which I believe is the highest sum usually given. There is a restaurateur at the west side of the Palais Royal (Moureau's), where they give you four dishes for the same price, but I think the food is hardly so good as at Tavernier's. In all these you dine in a handsome saloon, with everything clean and in good order; you are invariably presented with a clean napkin, and all those little comforts in which the cheaper London eating-houses are so deficient. At Tavernier's they give you ice to cool your wine in hot weather. There are other places still cheaper, which at least make a respectable appearance. In the evening you may have tea at any of the coffee-houses; but my experience is not in its favour, and I sometimes had an ice, sometimes an orgeat, and sometimes contented myself with eau sucrée, which has the merit of being the most economical of the three. *Mais revenons à nos moutons.*

(To be continued).

ART. CLXXXI. — *Notes on the Hieracium nigrescens* (Willd) of Babington's 'Manual,' and Mr. Gibson's *Hieracium hypochaeroides*. By HEWETT C. WATSON, Esq., F.L.S.

BOTH these Hieracia have been long known to English botanists, though never clearly understood. They occur in many localities, and specimens are doubtless preserved in many herbaria. It is not my

wish here to interfere with the good observers who have taken them under examination for the determination of their right names and characters ; but only to supply a few circumstances of their history, by which other botanists will be enabled to identify the specimens of them in collections.

In 1830, the "*Hieracium nigrescens*" was pointed out to me, then a very young botanist, by Professor Graham, on the Clova mountains, as a species which he believed to be distinct from *H. alpinum*, and I still possess specimens then collected. About the same date, perhaps in 1831, Sir W. J. Hooker gave me other specimens from the Cairngorum mountains, as a form of *H. alpinum*. In 1840, Mr. Gardiner, of Dundee, collected many good specimens of the plant for the Botanical Society of London, which were distributed to the members, labelled "*Hieracium Halleri, Vill.*" in the writing of Mr. Gardiner. In 1841, I brought living plants to my garden from Ben Alder, in Inverness-shire ; and still feeling at fault about the true place and name of the plant, I requested the opinion of Mr. Babington, who suggested that it was the *H. nigrescens* of Willdenow. Afterwards, on a living plant being shown to Mr. Borrer, that gentleman also designated it by the same name. On the continent it has been named as variously as in Britain. In my garden, the seeds falling about the plants (in 1842) produced young plants (in 1843) with leaves exactly like those on the original roots from Ben Alder, but they have not yet flowered. The plant differs from *H. alpinum*, by its very broad leaves with a few strong teeth, and the black involucre. It is altogether a much more rigid plant. The stems are simple or branched, leafy or leafless.

Mr. Gibson's note on his "*Hieracium hypochæroides*" (Phytol. 741), is valuable in its tendency to explain a remarkable blunder, as it now appears to be, which has been copied into several botanical works ; and in the diffusion of which I have been a party concerned, although not exactly in the manner stated by Mr. Gibson. The neighbourhood of Settle, in Yorkshire, has been long recorded as a habitat for *Hypochæris maculata* ; though not recently proved. Mr. Gibson has now confirmed a suspicion which occurred to me from other evidence, that a common *Hieracium* had been misnamed *Hypochæris maculata*, by some of the older botanists, who looked only at its spotted leaves. Hence the introduction of false localities for the latter plant into our books.

In the original 'Botanist's Guide,' published in 1805, the localities stand thus : — "About Malham Cove, *Dr. Smith*. Near Ottermine

Cove, Settle, *Mr. Caley*." I presume "Dr. Smith" to intend the author of the 'British Flora;' yet, in 'English Flora,' Smith gives no habitat on his own authority. In the New Guide, published in 1835, the localities are reprinted from Turner and Dillwyn's work, with an addition of "Rocks in Gordale," copied from MSS. lent to me by the late Mr. Winch, and in which that locality is inserted on the authority of Mr. Windsor. Mr. Gibson is therefore not quite accurate in saying that I refer the "*plant*" to *Hypochæris maculata*: my only participation in the matter was that of printing the localities expressly on the authority of other persons.

It was not until the winter of 1840-41, that I saw a specimen under the name of *Hypochæris maculata*, from the neighbourhood of Settle. In that winter Mr. Tatham sent specimens to the Botanical Society of London, so labelled:—an error that any one might have fallen into under the circumstances. Before those specimens were distributed by the Botanical Society, the labels were altered to "*Hieracium pulmonarium*," and probably with a note of interrogation after the specific name; some doubt, I recollect, being felt, as to whether that name or *H. maculatum* (of Smith) should be given to the specimens in question.

Several years ago the late Mr. J. E. Bowman communicated specimens to my herbarium, under the name of "*H. murorum*,"—and that I still consider to be the proper *specific* name of this spotted *Hieracium*. Mr. Bowman had collected the specimens about Castle Dinas Bran, near Llangollin, in North Wales; and I also gathered the plant in the same locality, in 1832. Early in that year, I found a few very young plants of it, by the falls of the Ogwen, in Caernarvonshire; a locality for *H. pictum*, according to Mr. C. C. Babington, in the New Guide.

In 1836, Mr. James Ward gave me specimens collected near West Burton, in Bishoptdale, Yorkshire; and which were labelled "*Hieracium pulmonarium*," and the locality published under that name, in the Supplement to the New Guide. There were likewise examples of the same plant among Mr. Gardiner's collections for the Botanical Society, in 1840; and these also were labelled "*H. pulmonarium, Sm.*" and distributed to various members of the Society. Lastly, I have collected this plant on the mountains of Forfar, Aberdeen, Inverness, and probably Perth shires. The Scottish specimens have usually two or three leaves on the stem, those of Wales and England one or none. The heads of flowers vary from one to three.

Not having seen Mr. Gibson's plant, I cannot confidently say that

it is the same as the specimens from these different localities; though his own brief account of it, and the specimens sent to London by Mr. Tatham, as before mentioned, leave small room for doubt on this head. Mr. Gibson boldly assumes that his *Hieracium* is the very plant formerly mistaken for *Hypochæris maculata*; and there appears great probability of the truth of this assumption, although no direct proof is adduced.

Thus far I write in the country, with only my own herbarium to refer to. In passing through London tomorrow on a journey northward, I hope to look into Smith's herbarium for any additional information. The Nos. of 'The Phytologist' for October and November reached my hands together, on the 3rd; so that I have only just seen the note by Mr. S. Gibson. It now must excite suspicion against the correctness of other northern localities for *Hypochæris maculata*, in Lancashire, Westmoreland and Forfarshire.

Thames Ditton, November 6, 1843.

P.S.—Nov. 7. On reference to Smith's herbarium, I find two specimens labelled "*Hieracium maculatum*." One of these is a garden specimen, the roots of which were brought from Westmoreland, by Mr. Crowe; and it corresponds well with the various specimens mentioned above, as probably identical with Mr. S. Gibson's plant. The exceptions to this correspondence are seen in its more leafy stem, bearing numerous flowers—the usual effect of cultivation in gardens. The second specimen in the herbarium I should rather have joined with a Sicilian plant labelled "*Hieracium pulmonarium*:" it is located from Breiddin hill, and was collected by Mr. J. E. Bowman. Apparently, the "*Hieracium glaucum*," from the Clova mountains, is still the same plant as the "*H. maculatum*" from Westmoreland.

Of *Hieracium nigrescens*, there are garden specimens in Smith's herbarium, labelled "*H. pulmonarium*?" The roots were found on Ben y Gloe, by Mr. Mackay, and on the Clova mountains, by Mr. G. Don. A specimen labelled "*H. pulmonarium*" (without question), and mentioned to have been collected by Mr. Borrer, at the "River Nivis, near the bridge. Scotland," does not greatly differ from the other two; but has narrower leaves.

Smith's specimens of *Hypochæris maculata* are all from Suffolk. This circumstance tends to corroborate Mr. Gibson's conjecture, that a species of *Hieracium* was mistaken for the *Hypochæris* in Yorkshire. My own conjecture is, that the *Hieracium* in question is merely the wild form of the garden *H. maculatum*, figured in 'English Botany'

under that name, but only a variety of *H. murorum*. *H. pulmonarium* appears a different species, and more like "*H. nigrescens*."

HEWETT C. WATSON.

ART. CLXXXII.—*Varieties.*

399. *Note on Inula Helenium and Ulex nanus.* Not knowing where to address Mr. Babington at this time, I send the enclosed to you, that it may meet his eye through the medium of 'The Phytologist,' if you deem it worthy a place in that journal. In conformity with the concluding paragraph of the Preface to Mr. Babington's 'Manual of British Botany,' I have to mention that during the late summer I found *Inula Helenium* growing abundantly in a moist meadow upon Newtown farm, in the neighbourhood of Lymington, Hants. Sir W. J. Hooker, in the last edition of his 'British Flora,' describes the flower as "large, terminal, solitary." In the Manual it is said, "heads few together or solitary." The plants found by me had generally four heads, and were consequently very unlike the figure in 'English Botany:' only one had so few as three. Whether any of the heads proved abortive I cannot say, the cattle having trodden them down before more than one blossom had opened. While upon Beaulieu heath in September, which is covered with furze and different species of heath, the former caught my attention from the circumstance that in very few spots only blossoms appeared; these I was disposed to refer to *Ulex nanus*, as they bore a striking resemblance to the figure of that species in 'English Botany.' On further observation, however, the flowers were found only upon the trailing shoots of such plants as had been cut down the preceding winter, rarely did a single shoot present a more erect position. The old entire bushes had not the least appearance of flowers upon them. Upon my return to Bath about the end of the month, I found the open part of the forest, on the Salisbury side of Lyndhurst, covered with furze everywhere in blossom, being so high and erect in many places as to represent Mr. Babington's var. β . *major* of *Ulex nanus*, the blossoms being twice as large as those upon Beaulieu heath. I had no opportunity of minutely examining the calyx, bracts or spines in either case. These facts, and Mr. Babington's not adopting specific characters from the teeth of the calyx, as Sir James Smith has done in 'English Botany,' and Sir W. J. Hooker in his 'British Flora,' but rather from the more or less shaggy surface of that organ, the ovate,

lax or very minute adpressed state of the bracts, or the relative situation of the flowers and spines, induce me to think that none of these appearances may be so constant as to afford specific characters. If so, why is not the var. *β. major* of *Ulex nanus* raised to the rank of a species? Its superior size, erect form, large flowers, and long and strong deflexed spines, seem, equally with *U. nanus*, to entitle it to this distinction. If they be distinct species however, why do the autumnal flowers of Beaulieu heath appear only upon the young shoots of those plants which have been cut down in the preceding autumn or winter? If only one species, why is the season of flowering different? Do the Beaulieu plants, which, in the adult state, seem to belong to *U. europæus*, flowering in the spring, throw out flowering shoots in the autumn, having the appearance of *U. nanus*, in consequence of their not having had branches capable of bearing blossoms in the spring? — *J. F. Davis, M.D.; Bath, October 25, 1843.*

400. *Note on Symphytum asperrimum.* In answer to Mr. Sidebotham (Phytol. 679), I may state my belief that Francis got the name of *Symphytum asperrimum* from my 'Flora Bathoniensis,' p. 32, where it is mentioned as a naturalized plant near Bath. — *C. C. Babington; St. John's College, Cambridge, October 30, 1843.*

401. *Urtica pilulifera in the Isle of Wight.* In your November No. (Phytol. 758), is a list by Mr. G. S. Gibson, of the rarer plants found by him near Ventnor, during a week's stay at that place last summer, amongst which is a notice of *Urtica pilulifera*, near Luccombe chine. I presume Mr. G.'s specimens were found in a field between the lodge and white gate near Chine-cottage, and the bank towards Rose-cliff and East end, on which *Epilobium angustifolium* grows, as otherwise I should esteem it a favour to be informed of a second locality; but since I have little doubt of my first supposition being correct, I would just beg to ask Mr. Gibson whether on examination he will not find his plant to be *Urtica Dodartii*? — in which case I can assure him he has neither made a discovery, nor secured an acquisition to his herbarium, the seeds of that species having been scattered by myself on the spot (till lately occupied by some ruinous cottages, now cleared away) two years ago, and I imagined the plants had become extinct. I gladly seize this opportunity, much as it tells against myself, of this unexpected exemplification of its injurious tendency, to condemn the practice of attempting to assist or direct Nature in the dissemination of plants, by artificially sowing their seeds in places where it is likely the plants produced may be taken for or confounded with the genuine natives of the soil; a practice which, if not

morally wrong, is, in a scientific point of view, highly reprehensible, as creating confusion in Vegetable Geography, by registering false stations, and cruelly misleading the working botanist by inducing a belief of his having found that which, unless spontaneously presenting itself to his observation, is, to say the least, utterly worthless as an object for examination and record. Having committed this misdemeanour, I feel bound to make the only reparation the act admits of, in a voluntary confession of guilt, and to assure Mr. Gibson that with this single exception, all the remaining, and to me most familiar localities, mentioned in his list, are, to the best of my belief, truly the appointment of Nature, — at all events, I can honestly declare they are none of my making.—*Wm. Arnold Bromfield ; Ryde, Isle of Wight, November 1, 1843.*

402. *Note on the New Cuscuta.* Dr. Lindley presents his compliments to the Editor of 'The Phytologist,' and begs to acquaint him that the matter at p. 756, headed a "New Agricultural Pest," and quoted from the 'Ten Towns' Messenger,' was stolen from the columns of the 'Gardeners' Chronicle,' where it formed a leading article on the 9th of September. — *Gardener's Chronicle Office, 3, Charles St., Covent Garden, November 3, 1843.*

403. *A few words more on the Habitats of Equisetum Telmateia.* Probably I have one blunder to answer for here, in common with the other parties who have sent notes on the subject to the pages of 'The Phytologist,' — namely, that of overlooking the proper inference from certain facts which conflict, perhaps, only while not clearly understood. Mr. Newman appears to have given the true explanation, in saying that "closeness and compactness of soil" are unfavourable. The watery situations in which I have seen the plant growing, were most (if not all) of them loosely muddy. The avoided watery situations, as described, were apparently of an opposite character. Several of the dry situations in which it is stated to grow, are upon loose earth or rubbish-heaps. Some of the habitats are in woods; and the soil in woods is often made very loose and porous by the decay of vegetable matter, the boring of worms attracted by the dead leaves, and the digging of moles in pursuit of worms. I beg, however, to add, that the tendency of my own remark on the subject, was to show that the plant did not shun water. My own opportunities had led me to agree with the descriptions of watery localities in many local Floras, and with the ideas suggested by the specific names given to the plant. But I may freely confess now, that the reports of various botanists in 'The Phytologist,' have fully satisfied me about the plant growing

away from water, more frequently and more flourishingly than I had previously supposed to be the case. — *Hewett C. Watson ; Thames Ditton, November 5, 1843.*

404. *Reply to Mr. Gibson on Carex distans.* Mr. Gibson's enquiry (Phytol. 777), specially addressed to me, proves (what I was previously unwilling to believe) that he is not aware that the specific characters of *Carex distans*, and of the two allied species, as given in the 4th and 5th editions of the 'British Flora,' have been drawn up by Dr. Boott, and not by Sir W. J. Hooker. To Dr. Boott, as to the "fountain-head" for information on this particular subject, Mr. Gibson should apply; no other person can pretend to give an infallible decision on this point. There is no method yet discovered of knowing the ideas of others, but through the medium of language; and Mr. Gibson may have learned by experience how easily an inadvertent expression may be turned against the writer to his discredit, either with or without a note of interrogation, by one addicted to such *pursuits of literature*. Mr. G. may see no occasion for the characters of *C. binervis* and *C. distans* being remodelled, *because* I have always found myself "at fault in making out the difference between them;" — (if that is not his reason for mentioning this interesting discovery, why does he make it a matter of such importance here?) Admitting, for the sake of argument, that my doubts were about something more than the *value of these differences*, as a foundation for specific characters, does it follow that I must still labour in the dark, and have no help from such able and enlightened men as Dr. Boott? I agree with Mr. G. that a perfect specific character ought not to be remodelled, and that every change must be for the worse; but he evidently confounds the idea of a description with that of a specific character. A description may be perfect, while the specific character extracted from it may be ill-constructed. The legitimate object of a specific character is, as I take it, to express, as clearly and as briefly as possible, wherein one plant &c. differs from all other *known* plants of the same family. For it is impossible to construct the specific character of each, so that it shall answer this end with regard to unknown species; and continual changes and remodellings are, in the very nature of things, indispensable, until a Flora is complete. The sanction for altering the specific characters of *Carex binervis* and *C. distans*, consists in the recent admission of a third species — *C. punctata* — previously unknown as British, with which each of the two had to be contrasted. It is evident that Sir W. J. Hooker did not think so highly of his own specific characters, or he would not have changed them

for others. But it seems that even the *description* of *C. distans* is not so perfect as that Mr. G. cannot remodel and improve it. — *W. Wilson; Warrington, November 6, 1843.*

405. *Note on Mr. Gibson's Carex pseudo-paradoxa.* I observed with some surprise in your last number, a paragraph by Mr. Gibson, headed "Note on a new British *Carex*," (Phytol. 778); and considering myself in some degree obligated to maintain the correctness of the Flora of this neighbourhood, I feel that I ought to afford to the readers of your valuable journal, what little information I possess as relating to this supposed "new species," in order that they may be put in possession of the opinions and facts in connexion with it here. At the present moment I will not stop to describe the exact topographical situation of this interesting plant, "as that is a secret;" but proceed to explain the nature of the circumstances under which the plant grows. All or most of your readers are doubtless aware that *Carex teretiuscula* has always been described as having an isolated and detached mode of growth; being, in this respect, strikingly contrasted with *C. paniculata*, which, until recently, was its only known British ally. In this, the roots form larger or smaller dense and elevated *cæspites*, or, as they are sometimes emphatically named, "stool-tufts." This feature has been in general use of late as an excellent means of diagnosis between the two plants when seen growing, and I may mention that I have had an opportunity of contrasting them on the same spot of ground, and so far as my observations extend, this difference in the formation of the roots is permanent. In the situation where Mr. Gibson's "*Carex pseudo-paradoxa*" is found, the plant has not the opportunity of displaying its characteristic property of isolation, and is compelled to increase by a regular approximation and aggregation of its roots: the place is a swamp, of a very small extent, situated in a rather deep hollow, the site of an old marl-pit, which originally was entirely filled with water. It is bounded on three sides by sloping banks covered with various shrubs, and on the other by the remains of the pit or pond; thus confined, the plant has assumed a singular and unusual habit: the roots are so closely interwoven with each other, as almost entirely to prevent the existence of any other plant, the herbage being constituted of the foliage of this plant, so as to appear like one immense and unbroken root; as we approach the water, however, it begins to separate itself into masses of various sizes, and is more isolated, and in this manner assumes a pseudo-cæspitose appearance: this circumstance, in connexion with its elongate and slender stems, and its more racemose mode of inflo-

rescence, led me, and the friend who was with me, to suspect that it might *possibly* be something new to us, and if so, probably *Carex paradoxa*, Schkuhr. I therefore instituted a very careful examination into all its characters, being solely desirous to learn the *truth* respecting it, whatever that might be; and after spending a considerable amount of time and patience in the enquiry, and carefully considering all the facts, particularly in reference to its *fruit*, which hardly, if at all, differs from that of *Carex teretiuscula* in its ordinary state, I was obliged, though very unwillingly, to conclude that it was nothing but a form of that plant, putting on a different aspect and habit from the adventitious circumstances under whose influence it happened to grow. Schkuhr's admirable figure of *C. paradoxa*, combined with his description, conclusively determined that it was not that plant; feeling however very diffident of my own ability to form a correct and positive opinion, and wishing to avoid even the appearance of error or hastiness of conclusion, I procured a considerable supply of recent specimens, and took them with me to my valued friend Mr. Wilson. We again jointly renewed the examination, which was conducted with all the care and ability we could bestow, both of us being anxious to add another species to our Flora, if we could do so consistently; but after all our pains, the facts were too clear, and the evidence too conclusive, to allow us to consider it as anything else than a modified form of *C. teretiuscula*. With this decision I feel quite satisfied, and I have no doubt Mr. Wilson will bear me out in the statements I have made. I may here also mention that the plant was submitted to Dr. Boott, the prince of our caricologists, and the *fountain-head* from whence *alone* indisputable opinions on this genus are to be expected, and I am proud to add the weight of his great authority in confirmation of our opinion. How Mr. Gibson could possibly assert, with anything like an appearance of truth, that the plant was "a *form* of *C. teretiuscula* with the *fruit* of *C. paniculata*," I am utterly at a loss to conceive; the thing itself is an absurdity. If the plant *has* the fruit of *Carex paniculata*, I opine that all will agree, save Mr. Gibson, that it must be *that plant*, or some state of it, and cannot by possibility be either *C. teretiuscula*, or what Mr. G. pleases to name "*C. pseudo-paradoxa*." An apple-tree does not *generally* produce pears, nor, for the same reason, does one species of *Carex* often assume the fruit characteristic of an entirely different one: the result of your correspondent's observations, however, on this natural law, appear to be at variance with those universally adopted by others. But as Mr. Gibson seems desirous, when anxious to strengthen and confirm his

own opinions, to have the able assistance of yourself, I feel that I cannot do better than submit the merits of this question to your decision. For this purpose I have sent perfect specimens of *Carex paniculata* and *C. teretiuscula*, as well as of *C. pseudo-paradoxa* (*Gibson*), and I shall be greatly indebted to you, and so, I have no doubt, your readers will also, if you will give them your most careful attention, and favour us with the results in the next number of 'The Phytologist.' You will perhaps have the goodness, especially to record on that occasion, the degree of similarity which you may observe between the fruit of *C. paniculata* and the "new species," as the decision of this point is a matter of some importance. I must not forget to notice the rather invidious assertion of your correspondent as to the secrecy which he says is maintained respecting the habitat of this very pseudo-paradoxical plant. No such thing as secrecy has been shown at all;—there was nothing to keep secret, and Mr. Gibson was never refused to have the place made known to him, the individual to whom he applied for that purpose merely declining to accompany him there, because he could not leave his business on a market-day, without great loss and inconvenience: to no one else did Mr. G. apply. — *J. B. Wood; Broughton, November 6, 1843.*

[After the decision arrived at by the eminent botanists above cited, it seems to be a work of supererogation for us to say a word on the subject; at least we cannot suppose that our opinion will add much weight to either side of the question: but since Dr. Wood has done us the honour thus publicly to appeal to our decision, it would savour somewhat of affectation were we to withhold the result of a very careful examination and comparison of the beautiful specimens forwarded by him, as well as of others previously received. Premising then that as we have never seen the plant named *Carex paradoxa*, and know nothing of it except from the short description in Mr. Babington's 'Manual,' and Schkuhr's figure, we are quite unable to say from actual comparison of specimens how far the disputed Manchester plant agrees or disagrees with that species. We must also state that as we have not enjoyed the opportunity of observing the disputed *Carex* in a growing state, our remarks must of necessity be confined to the dried specimens now before us. The first thing which struck us in the Manchester plant, as indicating a difference between it and the usual state of *Carex teretiuscula*, was the more elongated spike — *panicle* we cannot call it — of the former. This occurred some months ago, and since that time we have had an opportunity of seeing a tolerably extensive series of specimens, including those now sent by Dr. Wood, which show that the plant usually known as *C. teretiuscula*, is by no means constant in this respect, and that a regular gradation may be traced from the most dense spike of the one plant to the most elongated form of the other, but we have hitherto met with no approach to the mode of inflorescence of *C. paniculata*. A comparison of the roots, stem and herbage, equally fails to indicate any identity in the disputed plant with *C. paniculata*, while it goes far to establish a very close connexion with *C. teretiuscula*. Since then this plant has undoubtedly "the form of *C. tereti-*

uscula," let us see how far the possession of "the fruit of paniculata" will hold good. We have now before us, under the microscope, the fruit of the disputed plant, of *C. teretiuscula* and of *C. paniculata*, all in a mature and perfect state. No one who has examined and compared them will deny that there is a striking difference between the fruit of *C. paniculata* and that of *C. teretiuscula*. The former has a rather deeply cloven beak, laterally margined with a thickly fringed whitish membrane and furnished with a small wing on its convex side; the ribs are also tolerably prominent, and most of them extend from the base of the perigynium far into the beak: on the other hand, the fruit of *C. teretiuscula* has a scarcely cloven beak, with rather narrow, green, and sparingly serrated lateral membranes, and a prominent dorsal wing: the ribs are much more obscure than in *C. paniculata*, and several of them cease a short distance above the base of the perigynium, which appears more regular in its outline in the latter plant than in *C. teretiuscula*, and its deeply cloven beak is very striking. In these particulars the fruit of the disputed plant bears a close correspondence with that of *C. teretiuscula*, and consequently differs as widely from that of *C. paniculata*. In the nut, bracts and glumes we observe nearly the same degree of resemblance between the two plants, and an equal degree of discrepancy between them and *C. paniculata*. Taking therefore all these circumstances into consideration, whatever may have been our former opinion, which was founded on the examination of an insufficient number of specimens, we are bound to state that we can now come to no other conclusion than that the disputed plant is neither *C. paradoxa*, nor a form of *C. paniculata*, but *C. teretiuscula*, somewhat modified and changed in habit by the circumstances under which it occurs.—*Ed.*]

406. *Note on Statice rariflora.* The plant alluded to in my previous notes (Phytol. 429 and 492), and a specimen of which, presented to the Botanical Society of London, was figured in your pages (Id. 561), having at length been determined, I beg to offer an observation or two on it. At the time when the above-mentioned notices appeared, I was unable to give any further information respecting it, not having met with it until past flowering; and not *then* suspecting it to be a new species, I neglected to secure more specimens than those which I subsequently transmitted to the Botanical Society. This year, however, I have diligently examined the whole of the neighbouring salt-marshes, and am now able to state that the plant in question occurs in profusion in the neighbourhood of this town. I have sent specimens of it to many botanical friends, and in particular to Messrs. Babington and Watson. These gentlemen have kindly favoured me with their opinions on it, and both agree in referring it to Drejer's *Statice rariflora*. They consider it as identical with the Scottish plant. The chief distinguishing characteristics, as I have observed it in this neighbourhood, are as follows:—Scape 8 to 24 inches high, erect, *much* branched, generally below the middle; branches spreading: flowers distant, *pale* blue; petals *emarginate*: calyx *very hairy*, with a long tube, and five acute, somewhat lacerate teeth, also

very frequently with intermediate teeth : leaves ovato-spathulate when full grown, lanceolate when young. Perennial : flowering in August and September, about a fortnight later than *S. Limonium*. It grows in large tufts, as many as twelve or even more flowering stems frequently rising from a single plant. *S. Limonium* is common in company with it, but I have not seen any specimens which could truly be said to present intermediate grades. Whether small, or in the greatest luxuriance, *S. rariflora* preserves most completely its *prima facie* distinction — the inflorescence. In no instance have I seen the flowers at all crowded towards the ends of the branches, as they always are, even in the fewest-flowered specimens of *S. Limonium*. Having a few specimens still left, I shall feel pleasure in supplying any of your correspondents who may wish for one, as far as my duplicates will go.—*W. L. Notcutt ; Fareham, November 7, 1843.*

407. *On the plurality of Buds in the axilla of a single leaf.* Not having particularly examined the instances pointed out by Mr. Watson (Phytol. 776), I am not prepared to say whether they are completely in accordance with that which I have observed in the locust-tree. None of the Fuchsias, which I have now the opportunity of inspecting, exhibit the character which he mentions ; and the buds of the vine are essentially different from those of the locust-tree, of which I enclose a specimen, showing two young contiguous branches of the present year, gathered in June last, along with several other similar proofs. In that which accompanies this note, it will be seen that the lower shoot is the most vigorous ; but this circumstance is comparatively rare. If the two buds of the vine develope into branches in the same season, there is no mutual interference ; but in the case of the locust-tree, it is quite otherwise, and if both were to continue to grow for a few years, they would be incorporated together. The succession bud of *Fuchsia* may be nothing more than an axillary shoot from the base of the axillary flowering branch ; or if otherwise, may not be visible (that is, not in existence as a bud) at the time when the bud of the flowering branch first becomes apparent. Lateral buds are not confined to the axillæ of leaves, and there may be successive formation as well as successive development of axillary buds : but whenever this takes place, it may be expected to occur above rather than below the first-formed bud ; quite the reverse of what happens in the locust-tree, where the second and third buds below the first or principal bud, are in a condition to replace immediately the one which is first developed, in the event of its failure.—*W. Wilson : Warrington, November 8, 1843.*

408. *Note on Villarsia nymphæoides.* Having seen in 'The Phytologist,' several stations for *Villarsia nymphæoides* in Middlesex (Phytol. 747), I beg to mention one in Surrey. I have seen it growing plentifully near Isleworth ferry, in the ditch between the park and the Thames.—*Alexander Williamson : Kew, November 8, 1843.*

409. *Note on Impatiens fulva.* In addition to the several stations mentioned for *Impatiens fulva* (Phytol. 63), I may name three others, where I have seen it growing this season. The first is near Barnes, in a marsh between the road and the Thames, but it is not plentiful. The second is near Isleworth, on the right hand side of the road to Twickenham, in a ditch that runs across the field, where it is abundant. The third is near Hounslow, where it grows about the sides of some ponds near the mills.—*Id.*

410. *Note on Fritillaria Meleagris.* It may be interesting to some of your readers, especially Mr. Edwards (Phytol. 580), to know that this pretty plant and early ornament of our meadows, produced its drooping flowers in abundance last April, in the locality mentioned by Mr. E., half way between Mortlake and Kew bridge; but I am sorry to say that too many of the *radical* botanists visited this station during the time it was in flower; such hands prove more destructive than the Mortlake children, even supposing they do pull off the flowers to ornament their May-garlands. — *J. Ross : B. G. Kew, November 9, 1843.*

411. *Note on Aspidium spinulosum.* I am sorry to differ from Mr. Bree in respect to his observations on *Aspidium spinulosum* (Phytol. 773), more particularly his remark "that the application of the specific name of *spinulosum* to a British fern (first adopted, I believe, by Smith and Sowerby in 'English Botany') originated in error." The error will, I think, rest with the continental botanists, beginning with Willdenow, who applied this name to a plant differing from the species so named by Muller in 'Flora Danica.' This author first introduced our plant in his 'Flora Fridichsdalina,' published in 1767, as a variety of *Polypodium Filix-femina*: becoming editor of the 'Flora Danica,' he figured it in that work, No. 707, under the name of *Polypodium spinulosum*. Withering was the first English author who noticed it: my excellent friend, the late James Dickson, referred to by Mr. Bree, was, I believe, acquainted with the plant, but has nowhere published it. Withering was followed by Hull and Symons; Smith, changing the generic name to *Aspidium*, described it in 1804, in his 'Flora Britannica' (vol. iii.), well observing, — "*Distincta species a Cl. Witheringio benè elucidata.*" By this it will appear

evident that Smith and Sowerby did not *first* adopt it in 'English Botany,' but that in 1805 they figured a fern sent them by Mackay, of which he has stated, in 'Flora Hibernica,' that after cultivation it assumed the character of *A. dilatatum*. Had it not come from a cavern where *A. spinulosum* was not likely to grow, I should have thought it might be an indifferent figure of a bad specimen of that species, the pinnulæ being equal; as Mr. Mackay unites the two plants, it is not easy to ascertain what character of *A. dilatatum* he means to say it assumed. It is evident the *A. spinulosum* of Willdenow is a different species, and I wish Mr. Bree's supposition that it is his *A. recurvum*, may prove correct. I gathered this plant in Cornwall, I think in 1791, certainly not later than 1802, for I have not been in that county since.—*Edward Forster; Woodford, November 9, 1843.*

412. *Note on Sonchus oleraceus and S. asper.* Mr. G. S. Gibson has kindly pointed out to me an error concerning these plants in my 'Manual,' which is of so much consequence that I hasten to publish it. It is *Sonchus oleraceus* that has the *fruit transversely rugose combined with arrow-shaped auricles to the leaves*. In *S. asper* the *fruit* is longitudinally ribbed but *smooth*, not transversely rugose. Allow me to express a hope that if other errors are observed by those who may make use of my book, they will favour me by communicating them.—*Charles C. Babington: St. John's College, Cambridge, November 3, 1843.*

413. *Note on Cynosurus echinatus.* In reference to Mr. Edmonston's note on *Cynosurus echinatus* (Phytol. 772), I beg to say that I found only three roots of that plant in the Vale of the Calder. I met with them about half a mile from Sowerby bridge; two of them were beautifully in flower, these I took up to make specimens of; the other was in a young state, this I took up also, and have it now living: one of the others I have given away. A single plant of *Cynosurus echinatus* has been found this season at Ash-grove, about four miles from the place where I found those alluded to above. I have a specimen of this grass from the south of England, and another from the continent; these two specimens are identical, and both have a very dense ovate spike, which is covered with a very fine white silvery substance. The Ash-grove plant (which is now in my possession) is far more robust than the specimen from the south of England, its spike being two and a half inches long and about one and a quarter in breadth, and is somewhat interrupted in its lower part: it also differs in having only about half the number of glumes on its outer spikelets, and

in the absence of the silvery substance which is so conspicuous in the other two. By this it would appear that we have two distinct plants under this name; but on turning to my Sowerby-bridge specimen, I find it to correspond with the Ash-grove plant in its long and somewhat interrupted spike, and with my south of England specimen in having the silvery-looking substance, but in a less degree. Since I find such different forms in the few specimens which I possess, I shall risk no opinion as to their specific identity, but if Mr. Edmonston would wish to see any of (or all) the specimens I have alluded to, I shall take pleasure in giving him the loan of them for a short time. In addition to the above I might say that on looking over the grasses in the collection of Samuel Hailstone, Esq., I observe some south of England specimens of *Cynosurus echinatus*, which are identical with my own from that part.—*Samuel Gibson: Hebden Bridge, Nov. 11, 1843.*

414. *Note on Poa maritima.* Whilst on the subject of grasses I would just say that if any of your correspondents could furnish me with a specimen of the *Poa maritima* which has “the branches of the panicle smooth,” as stated Phytol. 294, they would bestow a favour on me.—*Id.*

ART. CLXXXIII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

November 3rd, 1843.—Hewett Cottrell Watson, Esq., F.L.S., V.P., in the chair. Donations of British Plants were announced from Mr. G. S. Gibson, Mr. W. L. Notcutt, and Mr. A. Henfrey. The following papers were read:—“On the Botany of Litchfield,” by the Rev. R. Garnett. “Notes on a species of *Cuscuta* found at Duxford, Cambridgeshire,” by Mr. Frederick Bond.

The Chairman presented a series of specimens of the common birch, in order to show that the forms described by different authors, under the names of *Betula alba*, *pendula*, *glutinosa* and *pubescens*, are only varieties of one single species—the original *Betula alba* of Linnæus. Mr. Watson stated that he had repeatedly found upon different branches of the same tree, the various forms of leaf and other characters which were given as the distinctions between these supposed species; and that the leaves of *Betula glutinosa* or *pubescens* were produced usually (if not always) on the seedling plants of *Betula alba* or *pendula*.

Specimens of *Primula elatior* from the Bardfield station were presented by Mr. E. Doubleday. These specimens were remarkable for the wide variation in the relative length of the calyx and corolla, and also in the form of the leaves; some specimens resembling the primrose in their tapering leaves, while others had the abruptly contracted leaves similar to those of the cowslip.

Specimens of *Barkhausia setosa* were exhibited, one of which was presented by Mr. Cumming in 1841, collected by him at Audley End, Essex, the other was presented by Mr. G. S. Gibson, and collected by him in a field near Sampford, Essex, in 1843.

G. E. D.

THE PHYTOLOGIST.

No. XXXII.

JANUARY, MDCCCXLIV.

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ART. CLXXXIV. -- *Notice of a Visit to Black Notley, Essex, the birth-place and residence of John Ray.* By JOSHUA CLARKE and G. S. GIBSON, Esqs.

It was on a hazy morning in July that we started from Saffron Walden on a botanical excursion, undertaken chiefly with the view to visit the tomb of John Ray, and to explore the village which derives its interest and celebrity from having been the birth-place of that illustrious man, and his residence during a considerable portion of his life.

The first object of Natural History to be mentioned on the journey is, that at a short distance from the village of Sampford we observed the *Cuscuta* which has lately been so destructive to clover (*Phytol.* 753), committing great ravages in a field of that plant; and we have since been informed that it has destroyed about one fourth of the crop. There is no doubt of its having been introduced with foreign clover-seed, but whether it be a variety of *C. Epithymum* or a distinct species, does not appear to be fully ascertained. It is a plant of more vigorous growth, spreading itself in circular patches, from four to ten feet in diameter.

The village of Sampford is an excellent locality for *Lilium Martagon*, where it now appears to be truly wild, both in a hedge and wood in the neighbourhood. Seeing some fine ones in blossom in a cottage garden, we asked the owner where he procured them; and the reply given was that he dug them up from a hedge in the lane, where they grew plentifully. He further stated that they had been there ever since he was a boy, probably about forty years. Up this lane, which is bounded by high banks and old copse-like hedges, we gathered upwards of a dozen specimens in flower, and left as many remaining. Near the same village we likewise saw *Ranunculus parviflorus*, *Petroselinum segetum*, *Scirpus sylvaticus*, and other plants. Pursuing our journey, we noticed in the hedges near Dunmow, *Ulmus major*, whose reflexed branches, winged with corky excrescences, can scarcely fail to attract attention. On a common by this town we gathered *Anagallis tenella*, *Sium inundatum*, *Veronica scutellata*, *Mentha Pulegium*,

Peplis Portula, Nardus stricta, Agrostis pumila, Festuca bromoides &c., and further on the road Ceanothe Phellandrium. In the centre of the pretty village of Saling stands a remarkably fine tree of *Ulmus montana*, var. *β. pendula*, whose elegant form and gracefully pendulous branches lead one to express a regret that more of this fine tree are not planted instead of the commoner and inferior ones. *Doronicum plantagineum* and *Vinca minor* grow near the village, and as we approached the town of Braintree, we gathered *Dipsacus pilosus*.

The village of Black Notley is situated about two miles from Braintree; it is a small, scattered, purely Essex village; as we approached it, the occasional gleams of the sun foretold a fine day, and added beauty and freshness to the quiet scene. Although the village affords but one very poor inn, we sat down to a hearty breakfast, not prepared to quarrel with our provision or accommodation. This over, we started forth to see and hear all we could regarding the illustrious Ray. Washington Irving remarks that "Genius seems to delight in hatching her offspring in bye corners." Ray was an exemplification of this; he was born here in 1628, and is said to have been the son of a blacksmith, but of this we found no traditional evidence, neither could we learn where the original blacksmith's shop had stood; the inhabitants speak of him as a very wonderful man who knew everything, and had travelled all over the world.

The church is an old plain tiled building, with rather a picturesque wooden spire, and stands in a delightfully rural situation. The church-yard is a good-sized enclosure, planted with horse-chesnut and elm: in this retired spot, on the south side of the church, rest the mortal remains of the greatest of British naturalists. The tomb is neat and handsome, of a pyramidical form, from ten to twelve feet high, and bearing an elaborate and appropriate Latin inscription. This monument was erected by Compton, Bishop of London, one of Ray's cotemporaries, and about fifty years since was restored by Sir Thomas Gery Cullum, and is now in excellent preservation.

The house in which Ray is said to have lived, stands on a hill about half a mile from the church, and is now used as a farm-house, but the present inhabitants could give us no information, and seemed not at all aware that they were treading the same boards as were trodden by the great Ray, or looking on the same fields and trees as he once admired. Adjoining the meadow below the house is a garden, which still bears the name of "Ray's Orchard." It is now held by an octogenarian market-gardener, who appeared to possess much of the ancient simple but genuine hospitality, and who was much pleased to

point out to us an old pear-tree, which tradition says was planted by Ray; its hollow trunk bears evident marks of great age, but the tree still retains considerable vigour, and yields an abundant crop.

As the day proved delightfully fine, we rambled about to notice the Natural History of the village; and although we did not find anything very rare, yet every object seemed to derive additional interest from its locality. A quiet little stream glides noiselessly through the meadows below the church, and on the opposite side of it is a picturesque wood. Near the former we observed the willow-wren (*Sylvia Trochilus*), the lesser whitethroat (*S. Curruca*), the blackcap (*S. atricapilla*) and the nightingale (*S. Luscinia*). The banks of the stream abound with several species of *Libellula*. In the meadows and adjoining wood we saw the speckled wood butterfly (*Hipparchia Ægeria*), *Argynnis Paphia*, *Vanessa Polychloros*, *V. Iö*, *Polyommatus Alexis*, *Pamphila sylvanus*, &c.

Among the plants noticed were *Ranunculus arvensis*, *Reseda Luteola*, *Scleranthus annuus*, *Cerastium aquaticum*, *Malva moschata*, *Eunonymus europæus*, *Genista tinctoria*, *Trifolium ochroleucum*, *Pyrus communis*, *Sison Amomum*, *Torilis infesta*, *Viburnum Opulus*, *Petasites vulgaris*, *Pyrethrum Parthenium*, *Campanula hybrida*, *Lycopus europæus*, *Mentha sylvestris*, *Chenopodium polyspermum*, *Tamus communis*, *Carex pendula*, *Milium effusum*, *Melica uniflora*, *Festuca loliacea*, *Polystichum aculeatum*, &c.

After having finished our ramble, and having partaken of such provision as the inn afforded, we set out on our return home, thus concluding a very agreeable and interesting excursion to a spot, which must be deemed by every naturalist to possess something of a sacred character. And although the labours of Ray are little known in his native village, it is pleasing to reflect that by the public generally his works are increasingly valued.

We cannot perhaps better conclude this notice of our excursion than with the following brief sketch of the life and works of John Ray.

Ray was born in 1628; and although his father was in so low a station of life, he contrived to give him a liberal education. He was sent when young to the grammar-school at Braintree, and afterwards entered Trinity College, Cambridge, where, in 1649, he obtained a fellowship, and took the degree of Master of Arts. In 1651 he was appointed Greek Lecturer, and in 1667 was elected Member of the Royal Society. The work by which he is best known to the public, is his 'Wisdom of God in Creation,' an original and extraordinary work in its day, and one replete with philosophical detail, which

breathes in no ordinary degree the spirit of Christian piety ; and it is gratifying to see how, as knowledge has increased, his ideas of Natural Theology, in connexion with Natural History, have been carried out, first by Derham in 1720, then by Paley, and in the present day by the Bridgwater Treatises, MacCulloch, and others.

His works on Botany are numerous and extensive. He was unquestionably the first who reduced that science to system, and thus paved the way for the immortal Swede ; he found Nature a trackless wilderness, but his genius and perseverance reduced it to order, method, and systematic arrangement. Linnæus truly characterises his ‘*Historia Plantarum*,’ as “opus immensi laboris.” Sir J. E. Smith observes,—“Of all the systematical and practical Floras of any country, Ray’s ‘*Synopsis*’ is the most perfect that has ever come under our observation. He examined every plant recorded in this work, and even gathered most of them himself. He investigated their synonyms with consummate accuracy, and if the clearness and precision of other authors had equalled his, he would scarcely have committed an error.” His publications on the various departments of Zoology have established his high reputation as a philosophical naturalist. His ‘*History of Insects*,’ Mr. Haworth observes, is a masterpiece of clearness and precision. He was an intimate friend of Willughby, with whom he travelled through the Low Countries, Germany, Italy, &c., and subsequently assisted him to arrange his collections in all the various branches of Natural History. After the premature death of his friend, Ray acted as tutor to his children, with whom he resided for some time. But this excellent and admirable man appears to have spent many of his last years in his secluded native village, retaining his intellect to the last, and dying in 1705, at the age of seventy-seven.

Ray was a man whose whole life is to be admired. Even amid the ardour with which he prosecuted his scientific studies, he appears always to have kept in view this noble object, the advancement of the glory of God, and the good of his fellow-creatures.

The second centenary of his birth was celebrated in London in 1828, by a public dinner, at which were present many of the most celebrated naturalists and leading characters of the day, the President of the Royal Society occupying the chair. G. S. GIBSON.

Saffron Walden, October, 1843.

ART. CLXXXV. — *On the Varieties of Betula alba of Linnæus, described as distinct Species by some authors.** By HEWETT C. WATSON, Esq., F.L.S.

THERE is, perhaps, in the present day, scarcely any circumstance more calculated to impede the progress of botanical science, and to throw difficulties in the path of the younger botanist, than the growing fondness for changing names, and for inventing species in books which have really no distinct existence in nature. I believe that it would be no exaggeration of the number of these spurious species now enumerated in the descriptive Floras of Britain, if I were to estimate them at about two hundred. But in the present paper my remarks will be restricted to those imaginary species which have been carved out of our common birch, the *Betula alba* of Linnæus.

When the last volume of Smith's 'English Flora' was published, in the year 1828, this tree was described as a single species under the name of *Betula alba*. But the author of that still valuable work did slightly mention a pendulous variety, which had been published in Germany, as a distinct species, under the name of *Betula pendula*. And in the various editions of the 'British Flora,' we find the authority of Sir W. J. Hooker added to that of Sir J. E. Smith; since the latter work still describes the birch-tree as one species only, though stating, in the last edition (1842), that the name of *B. glutinosa* appeared in the 'Edinburgh Catalogue,' as if belonging to a distinct species.

In Lindley's 'Synopsis of the British Flora,' which followed shortly upon the completion of the 'English Flora,' we find the pendulous form described as a distinct species, under the name of *Betula pendula*, *Roth*.

In the second edition of the Catalogue published by the Botanical Society of Edinburgh, in 1841, the views of Dr. Lindley are not recognized; his species, *Betula pendula*, being enumerated only as a variety of *B. alba*. To compensate this reduction of one pretended species from the number, another was found, and introduced into the Catalogue under the name of *B. glutinosa*, *Wallr*.

In that capital work, the recently published 'Manual of British Botany,' by Mr. C. C. Babington, Dr. Lindley's *B. pendula* is at last utterly cashiered, being not even given as a variety. But to make up

* Read before the Botanical Society of London, November 3, 1843; communicated by the author.

for the omission of this variety (allowed by the same author, two years before, in the 'Edinburgh Catalogue') we now find in the 'Manual' another variety, not of *B. alba*, but of *B. glutinosa*, introduced under the name of "pubescens."

Thus, taking the Floras together, we have three species of birch-tree — *B. alba*, *B. pendula* and *B. glutinosa*; the last of these three being subdivided into the typical (usually glabrous) form and the variety *pubescens*. In this medley of contradictory views, I hold that Smith and Hooker are correct, in describing only one species; and that Lindley's *B. pendula*, and Babington's *B. glutinosa*, are merely forms of that one species, the *Betula alba* of Linnæus.

Dr. Lindley's name stands very high among botanists, and deservedly so, but his botanical reputation has never been considered to rest on any skill in the discrimination and determination of species; and since both Hooker and Babington have thought fit to reject *B. pendula*, we may safely pass it over at present, as a mere book-species.

Betula glutinosa and its variety *pubescens*, still remain open for investigation. In the Manual, we are told that *B. alba* is readily distinguished from *B. glutinosa* "by its leaves, but more certainly by its fruit." The difference between the leaves of the two is thus stated:—

B. alba.—"Leaves rhomboid-triangular doubly serrate acuminate."

B. glutinosa.—"Leaves cordate-ovate unequally serrate acute."

This reads very satisfactory on paper, and may appear equally so in small specimens for the herbarium. Unfortunately, however, for this ready distinction of the species, while old trees, with pendulous branches, are clothed with leaves exactly corresponding with this description of the leaves of *Betula alba*, the seedling plants which spring up underneath them, produce cordate and pubescent leaves. The old trees are thus *B. alba*, while their young progeny are *B. glutinosa* variety *pubescens*. Moreover, I have repeatedly seen, on the same single tree, that the upper and drooping branches bore the rhomboid leaves of *B. alba*, while the lower ascending or nearly horizontal branches were clothed with the cordate-ovate leaves said to be characteristic of *B. glutinosa*. And still, on the same trees, I have occasionally observed completely cordate and pubescent leaves, like those of the seedling plants, produced on suckers from the root, on soft shoots near the base of the old trunk, on late autumnal branchlets, and on those fast-growing shoots which push out where branches have been lopped.

The serratures of the leaves are equally variable as their forms, and doubly serrate leaves may be seen growing on the same tree with un-

equally serrate leaves. And I fear that the fruit is not a whit more constant to the characters given for these supposed species. In the Manual, we have the characters of the fruit described thus : —

B. alba.—"Fruit obovate-elliptical shorter than the rounded membranous margin."

B. glutinosa.—"Fruit broadly obovate as long as the rounded membranous margin."

The difference of form between "obovate-elliptical" and "broadly obovate" is not great; and I have seen still wider differences in form, even on the very same tree; and such differences may readily be found in the fruit of trees whose leaves are undistinguishable in their form and serratures. I have also seen the fruit of *B. glutinosa* (namely, of trees with cordate-ovate leaves) shorter than its membranous margin, and that of *B. alba* (namely, of trees with rhomboid leaves), equalling or longer than the margin.

In conclusion, therefore, I boldly assert, in contradiction to the belief of Mr. Babington, that *Betula alba* and *B. glutinosa* are not only one single species, but are often undistinguishable as varieties, since both forms may appear on different branches of the same single tree.

HEWETT C. WATSON.

Thames Ditton, November, 1843.

ART. CLXXXVI—*A Few Days in Suffolk*. By W. L. NOTCUTT, Esq.

HAVING read with much interest the various details of botanical excursions which have from time to time appeared in 'The Phytologist,' it has occurred to me that a few particulars respecting the results of a short visit which I paid to Ipswich and the neighbourhood during a part of the month of June last, might not be unacceptable, especially as the floral riches of the county of Suffolk are by no means despicable. I reached Ipswich on the 13th of June, and on the following day wended my way by the side of the Gipping, with the view of ascertaining what it might afford in the way of Botany. The first plants worth notice which caught my eye were *Thalictrum flavum*, *Lythrum Salicaria* and *Angelica sylvestris*, growing most luxuriantly by the sides of the neighbouring ditches, but none of them as yet in blossom. A little further on were a few specimens of *Hippuris vulgaris* growing near the side of the river, while, nearer the centre of the stream, some fine plants of *Nuphar lutea* were displaying their beautiful flowers. On crossing a grass-field, a broad stagnant ditch afforded me *Hydrocharis Morsus-ranæ*, *Lemna polyrhiza* (the purple underside of which contrasts beautifully with the pale green of the

upper surface), *Hottonia palustris* and *Nuphar lutea* again. In returning to Ipswich but little worthy of note offered. The sides of the ditches were richly bedecked with the common, though not on that account the less beautiful, *Myosotis palustris*, while *Anthriscus vulgaris* and *Silybum Marianum* were plentiful by road-sides. On a wall in the London road was formerly a habitat (I believe the only one in the neighbourhood) for *Geranium lucidum*; but though anxiously looked for, not a single specimen was this year to be found.

On the 15th the beautiful morning tempted me to direct my steps to Freston tower, a picturesque spot about four miles down the Orwell. At Bowen-bridge, two miles from Ipswich, *Beta maritima* and *Statice Limonium* were growing sparingly. A little on the hedge-banks beyond the Ostrich, the rare *Turritis glabra* was growing in moderate quantity: this is, I believe, its only locality near Ipswich. On the opposite side of the road was plenty of *Festuca bromoides*, while at a little distance, the salt marsh at the side of the river was carpeted with a rich display of the beautiful blossoms of *Armeria maritima*. On ascending the hill leading to the tower, a fine specimen or two of *Potentilla* [argentea?] presented themselves, while in the neighbouring corn-fields the beautiful though evanescent blossoms of *Erodium cicutarium*, which was growing in great luxuriance and abundance, could not fail to strike the eye: I had also the pleasure of gathering on this spot some good specimens of *Thlaspi arvense*. I remember hearing an experienced botanist remark, with regard to this plant, that he had never found it for two successive years in the same place; even when he had met with it in some abundance, it was probably not to be seen in the same place again for some time afterwards. I have had but two opportunities of watching the plant, and so far as my observation goes, the above remark holds good. If it is correct, it is a curious fact; what is the cause of it? In a meadow below the tower I have formerly gathered *Orchis Morio* in plenty; and in Freston wood, *Lysimachia nemorum* and the two *Chrysosplenias* used to be found, but I was too late for them this year.

“Portman’s walks” and its neighbourhood, close to Ipswich, afford several interesting plants. In the ditches were fine specimens of *Butomus umbellatus*, which is a rare plant about Ipswich, though it grows in several spots. In the farther part of the walks *Thlaspi arvense* used to grow, and here I have formerly gathered the finest specimens I ever saw; this year not a vestige of it was to be seen. The same may be said of *Leonurus Cardiaea* and *Delphinium Consolida*, the latter of which, I recollect, ten or eleven years ago, used to

grow in splendid profusion at the top of the hedge-banks. *Saponaria officinalis* still grows here in plenty, but has double flowers. Turning from the walks towards the salt river, *Samolus Valerandi* makes its appearance in the ditches, while by their sides grows *Thalictrum flavum* in abundance. A little further on is *Lepidium latifolium* in profusion by the side of the "Shoulder-of-mutton pond." Returning to Stoke bridge, I looked along the new embankment formed by the side of the wet dock, thinking that perhaps among the newly-exposed gravel, something of interest might have sprung up, and was much pleased in gathering *Lepidium ruderales*, a plant I had never met with before within twelve miles of Ipswich.

On the 17th a stroll to the race-ground and the decoy-ponds afforded me *Arenaria rubra*, *Anthemis arvensis*, *Aira caryophylla*, *Carex ovalis*, *Juncus squarrosus*, *Ornithopus perpusillus* and *Festuca myurus*; had time permitted, I have no doubt that many more interesting plants would have rewarded my researches.

On the 19th I left Ipswich for Felixtow, a small village on the Suffolk coast, which presents many interesting features to the botanist. It is about twelve miles from Ipswich, and the neighbourhood will amply repay an industrious search. I spent part of two or three days in investigating that part of the coast which lies between Felixtow and Landguard fort, at the entrance of the Orwell, and just opposite Harwich. The first plant which attracts attention is *Ammophila arenaria*, which abounds on the sandy ground in front of the hotel, and amongst it is *Schlerochloa maritima*, and fine specimens of *Convolvulus Soldanella* in profusion. About a mile from Felixtow, *Festuca uniglumis* and *Carex arenaria* appear in the sand; while on the sandy plain at the back of the beach, *Phleum arenarium* abounds, and associated with it is *Valerianella dentata*, var. *β. mixta*, though but sparingly. Close at hand is a Martello tower, and here we begin to meet with *Trifolium suffocatum*, *Medicago minima*, *Geranium pusillum*, *Trifolium scabrum*, and the beautiful white-flowered variety of *Erodium cicutarium*. From this place to Landguard fort, the two former plants are so abundant, that many parts of the green sward are composed of scarcely anything else: and should they be desiderata with any of your correspondents, I shall be happy, if my life is spared, to supply any of them with specimens next season, if they will intimate their wishes to me in time. On the right of the town is a salt marsh, nearly covered with *Halimus portulacoides*, and in front lies Landguard fort. On the sandy point to the left of the fort we meet with *Euphorbia Paralias*, *Glaucium luteum*, *Adenarium peploides*, *Silene*

maritima and *Eryngium maritimum*; and Landguard fort itself is one of the reputed stations for *Tamarix anglica*, although I must confess that there is no appearance of its being truly wild. It is very abundant, for there are whole hedges of it on the grounds of the fort, and within the fortifications there are some very fine and aged tamarisk trees, the branches of which are supported by props. One of the largest trees I measured, and found its circumference to be six feet three inches. On that part of the coast which lies between Felixtow and Bawdsey-ferry, at the entrance of the river Deben, I was surprised to find that the encroachments of the sea had swept away most of the plants which I used to find there, such as *Salsola Kali*, *Cakile maritima*, *Atriplex laciniata*, &c. Near Sir S. Fludyer's were some fine plants of *Koniga maritima*, which, however, had doubtless escaped from the garden. Here likewise are abundance of tamarisk trees, but all are planted, and have been raised from those at Landguard fort. On the sandy common forming the corner of the land at Bawdsey-ferry, *Medicago minima*, *Trifolium suffocatum* and *T. scabrum* are again plentiful; and, growing among them, the pretty *Sedum anglicum* is frequent. Within the enclosure of a sunken bastion, *Salvia verbenaca* and *Trifolium ornithopodioides* were growing, as was *Carduus tenuiflorus* on the common. On the opposite side of the Deben we gathered *Eryngium maritimum*, *Kœleria cristata*, *Salsola Kali*, *Atriplex laciniata* and *Carex divisa*. Returning to Felixtow by the fields, I had an active search for *Agrostis Spica-venti*, which I formerly found in a corn-field close to the terrace, but I was much disappointed in not meeting with a single specimen. However, I was somewhat rewarded for the vexation by finding in a hedge not far off, some most luxuriant plants of *Fumaria capreolata*, the cream-coloured blossoms of which, with their dark purple tips, were remarkably attractive and beautiful. My paper has already extended to such a length, that I must only remark that a walk to Walton-ferry afforded me *Lathyrus Nissolia* in profusion, *Geranium pyrenaicum*, *Hyoscyamus niger*, *Ranunculus sceleratus* and *Vicia sativa*, var. β . *angustifolia*. Thus ended my Suffolk trip, and I should be very happy if the detail of my researches should afford your readers a tithe of the pleasure in the perusal which the recollections and associations it brings to mind while writing it give to me.

W. L. NOTCUTT.

Fareham, November 1, 1843.

ART. CLXXXVII. — *Rarer Plants observed in the neighbourhood of Teignmouth, Devon.* By ROBERT C. R. JORDAN, Esq.

Lympstone, Devon, September 7, 1843.

SIR,

I have sent you a list of some of the rarer plants found in the neighbourhood of Teignmouth, Devonshire, the farthest range from that place being about sixteen miles. They are classed according to the Linnæan system, which has always appeared to me the best adapted for the arrangement of British plants at least. Hoping the list may prove acceptable to some of your readers, I remain,

Yours very truly,

ROBERT C. R. JORDAN.

To the Editor of 'The Phytologist.'

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| <i>Salicornia herbacea.</i> Salt marshes. | <i>Gentiana campestris.</i> Babbacombe cliffs. |
| <i>Zostera marina.</i> Teignmouth beach after storms. | <i>Eryngium maritimum.</i> Beach at Teignmouth &c. |
| <i>Ligustrum vulgare.</i> Teignmouth cliffs &c. | <i>Daucus maritima</i> and <i>Crithmum maritimum.</i> Cliffs, Teignmouth. |
| <i>Veronica Anagallis.</i> Banks of the Teign. | <i>Statice Armeria</i> and <i>Limonium.</i> Salt marshes. |
| <i>Pinguicula lusitanica.</i> Marshes near Haldon. | —— <i>rariflora.</i> Near Exmouth. |
| <i>Salvia Verbenaca.</i> Cliffs, Teignmouth. | <i>Galanthus nivalis.</i> Banks of the Teign. |
| <i>Valeriana rubra.</i> Old walls. | <i>Narcissus biflorus.</i> Near Dawlish. |
| —— with white flowers. Dawlish cliffs. | —— <i>Pseudo-narcissus.</i> Ashburton. |
| —— <i>dioica.</i> Near Newton. | <i>Allium ursinum.</i> Near Newton. |
| <i>Iris fetidissima.</i> Common. | <i>Scilla autumnalis.</i> Babbacombe cliffs. |
| <i>Rubia peregrina.</i> Hedges at Teignmouth, common. | <i>Narthecium ossifragum.</i> Marshes, Haldon. |
| <i>Plantago Coronopus.</i> Teignmouth beach and on Haldon. | <i>Saponaria officinalis.</i> Near Dawlish. |
| —— <i>maritima.</i> Dawlish warren. | <i>Dianthus Armeria.</i> Haldon &c. |
| <i>Anchusa sempervirens.</i> Dawlish, hardly wild. | <i>Silene anglica.</i> Near Dawlish warren. |
| <i>Anagallis tenella.</i> Marshes, Haldon. | —— <i>maritima.</i> Cliffs at Teignmouth. |
| <i>Convolvulus Soldanella.</i> Dawlish warren. | <i>Arenaria peploides.</i> Teignmouth beach. |
| <i>Campanula rotundifolia.</i> Near Torquay, rare. | <i>Cotyledon Umbilicus.</i> Common. |
| —— <i>hederacea.</i> Marshes on Dartmoor, Spitchweek, &c. | <i>Cerastium aquaticum.</i> Near Newton. |
| <i>Viola hirta</i> and <i>odorata.</i> Woods &c. | <i>Spiræa Filipendula.</i> Babbacombe cliffs. |
| —— <i>palustris.</i> Marshes on Haldon. | <i>Rubus Idæus.</i> Near Ashburton. |
| <i>Hyoscyamus niger.</i> Dawlish warren. | <i>Papaver hybridum.</i> Near Dawlish. |
| <i>Vinca minor.</i> Hedges &c. | <i>Glaucium luteum.</i> Cliffs, Teignmouth. |
| | <i>Helianthemum polifolium.</i> Babbacombe cliffs. |
| | <i>Delphinium Consolida.</i> Teignmouth, rare |
| | <i>Aquilegia vulgaris.</i> Woods. |
| | <i>Helleborus viridis.</i> Near Newton. |

- Lamium album*. Ashburton &c., not found in the immediate neighbourhood of Teignmouth.
- Melittis Melissophyllum*. Woods &c.
- Scutellaria galericulata*. Exmouth.
- Rhinanthus Crista-galli*. Haldon.
- *major* [?]. Woods &c.
- Antirrhinum Orontium*. Sandy fields.
- Alyssum maritimum*. Exmouth, hardly wild.
- Teesdalia nudicaulis*. Haldon &c.
- Cochlearia officinalis*. Banks of the Teign.
- *danica*. Beach, Teignmouth.
- *Armoracia*. Dawlish.
- Cakile maritima*.
- Cheiranthus Cheiri*. Dawlish cliffs.
- Brassica oleracea*. Babbacombe cliffs.
- Erodium cicutarium*, with white flowers. Den, Teignmouth &c.
- *moschatum*. Exmouth.
- Geranium lucidum* & *columbinum*. Common near Teignmouth.
- Lavatera arborea*.
- Fumaria lutea*. Old walls near Newton.
- Lathyrus Nissolia*. About three miles from Teignmouth, on the Newton road.
- *sylvestris*. Cliffs, Teignmouth.
- *latifolius*. Dawlish warren, but hardly wild.
- Vicia sepium*, with white flowers. Bradley woods, near Newton.
- *bithynica*. Cliffs, Teignmouth.
- Hedysarum Onobrychis*. Road between Teignmouth and Torquay.
- Trifolium subterraneum*.
- Lotus angustissimus*. Near Bishopsteignton.
- Medicago maculata*.
- Hypericum Androsæmum*.
- *calycinum*. Near Ashburton.
- *quadrangulum, perforatum, humifusum, montanum, pulchrum*, and *elodes*.
- Tragopogon pratense*. Near Bishopsteignton.
- Picris echioides*. Cliffs, Teignmouth.
- *hieracioides*. Near Newton.
- Serratula tinctoria*. Woods near Ashburton.
- Artemisia campestris*. Banks of the Teign.
- *maritima*. Teignmouth beach.
- *Absinthium*.
- Chrysocoma Linosyris*. Berryhead.
- Aster Tripolium*. Salt marshes; the variety with the outer or purple florets wanting occurs near Exmouth.
- Pyrethrum maritimum*. Salt marshes.
- Anthemis nobilis*. Haldon &c.
- Achillæa Ptarmica*. Banks of the Teign.
- Centaurea nigra*, var. *radiata*. Common.
- Orchis bifolia*. Woods.
- *pyramidalis, mascula, latifolia* and *maculata*.
- Ophrys apifera*. Babbacombe cliffs.
- Neottia spiralis*. Ditto.
- Myrica Gale*. Near Asburton.
- Tamus communis*.
- Buxus sempervirens*. Scarcely wild.

ART. CLXXXVIII.—*Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

(Continued from page 801).

On the 19th I went to Fontainebleau, on what turned out to be a thoroughly wet day. I left the diligence at Chailly, following the directions given to me by M. de Jussieu. The landlady there charged me four francs for my breakfast, under the pretence that she had given me a bottle of old Burgundy. In general I find the people very honest and moderate in their charges in the French villages and small towns—this was an exception.

I left the high road on the right, and after crossing some corn-fields and a small wood, followed the direction of a sharp brow in the forest where the sandstone is much quarried, to the *Belle Croix*, sometimes dipping into the valley beneath, to see if any plants were to be found differing from those above. The crest is rocky, the valley, or at least the lower part of the slope, is of loose sand, but the best Botany is on the crest. The position of some of the plants the most peculiar to Fontainebleau, is very curious. The forest exhibits a remarkable development of a tertiary sandstone, of which the harder parts form a rocky crest to the hills. On the top of these rocks are hollows often containing water. These pools do not perhaps occupy a fourth part of the surface which drains into them, but it is a surface of rock either naked, or very slightly covered with a dark heathy soil, and there is no drainage from the general surface of the hill. I think the best pools, some of them perhaps hardly a yard square, are where the supplying surface has not sufficient soil to support anything but a few mosses and lichens, or where a great part of it is naked. It will easily be conceived that in such circumstances the water, in fine weather, becomes very warm. In summer a great deal of this dries up, but there still remain deep hollows, whose area, instead of occupying a fourth, is reduced to a twentieth of the receiving surface, and here the plants find a refuge. In these little pools we find great abundance of *Buliarda Vaillantii* and *Ranunculus nodiflorus*, two plants which are hardly found, or are extremely rare elsewhere. *Delphinium Consolida*, which is common in the corn through great part of France, was coming into flower, and *Medicago apiculata* had sufficiently formed its very characteristic legumes. *Veronica spicata* begins to exhibit its spikes; *V. verna* is pretty well over. *Festuca uniglumis* is abundant in the loose sandy parts, *Cynanchum Vincetoxicum* everywhere; and so is *Asperula tinctoria* in this part of the forest, although it is a plant generally rare. *Fedia carinata* and *olitoria* have made way for *F. auricula*, which is now the predominant species. The other plants were : —

<i>Trifolium rubens</i>	<i>Phalangium ramosum</i>	<i>Galium læve</i>
<i>Genista sagittalis</i> [there	<i>Sedum villosum</i>	<i>Inula hirta</i>
<i>Orchis ustulata</i> , here and	<i>Tillæa muscosa</i>	<i>Gypsophila muralis</i>
<i>Phyteuma orbiculare</i>	<i>Helianthemum umbellatum</i>	<i>Lychnis viscaria</i>
<i>Campanula persicifolia</i>	out of flower	<i>Phalangium Liliago</i>
<i>Geranium sanguineum</i>	<i>Orobis niger</i>	<i>Ranunculus Chærophyllus</i>
<i>Globularia vulgaris</i>	<i>Vicia lutea</i>	<i>Thesium intermedium</i> ?
<i>Epipactis Nidus-avis</i>	<i>Trifolium strictum</i>	<i>Dianthus carthusianorum</i>

In the latter part of my walk I met with *Sesleria cærulea*. —

This plant is abundant on the limestones of the North of England, but does not occur, so far as I know, on those of South Wales or of the West of England. It is not met with on our chalk hills, but is abundant on those about Rouen. At Dreux, still on the chalk hills, it is scarce. The station at Fontainebleau belongs, I think, to the calcareous beds overlying the sandstone. The '*Flore du centre de la France*,' by A. Boreau, gives habitats still more to the south.

The 20th was fair, though cloudy; but the rain of yesterday, followed by a wet night, had left both grass and woods full of water. Still following the advice of M. de Jussieu, I set out through the gardens of the chateau to reach the Mail de Henri Quatre. I went up a ridge of barren hills on the left, which I erroneously supposed to be connected with the *Mail*, but found nothing on them. Afterwards, not understanding what was meant by the word *Mail*, I crossed it without knowing, still supposing the term to belong to a crest of rocks beyond me. However, I gathered in crossing it most of the plants which are said to be found on the Mail, viz., *Ononis Columnæ*, *Arenaria triflora* (a variety of *A. grandiflora* according to Duby), *Helianthemum apenninum* and *Fumana* (or *procumbens*), and *Teucrium montanum*.

On leaving the Mail and crossing to the opposite crest, I found there abundance of those small *mares* or pools, but the only rare plant in them was *Ranunculus tripartitus*. Some tufts of this species growing quite out of the water, although this was high from the late rains, producing hardly any but the capillary leaves, and completely covered with flowers, were very beautiful. On a later occasion, the 5th of August, I met with abundance of *Elatine hexandra* in these pools. Thence I descended into a large barren plain — *Plaine du Chêne Brulé* — which is crossed by the road to Lyon, where I added *Ranunculus gramineus* and *Scorzonera austriaca* to my collections, but unfortunately both completely out of flower, and almost losing their seeds. Here also grow *Trifolium montanum*, *Alyssum montanum*, *Epilobium angustifolium*, *Lactuca perennis* and *Teucrium montanum*. Other plants in this part, which are generally diffused in the forest, are the following.

<i>Trinia glaberrima</i>	<i>Viola canina</i> , var.	<i>Phalangium Liliago</i>
<i>Statice plantaginea</i>	<i>Arundo Epigejos</i>	<i>Silene Otites</i> , an eastern
<i>Rubus plicatus</i>	<i>Helianthemum guttatum</i>	plant with us
<i>Veronica Teucrium</i>	<i>Plantago arenaria</i>	<i>Arenaria setacea</i>
<i>Genista pilosa</i>	<i>Linum tenuifolium</i>	

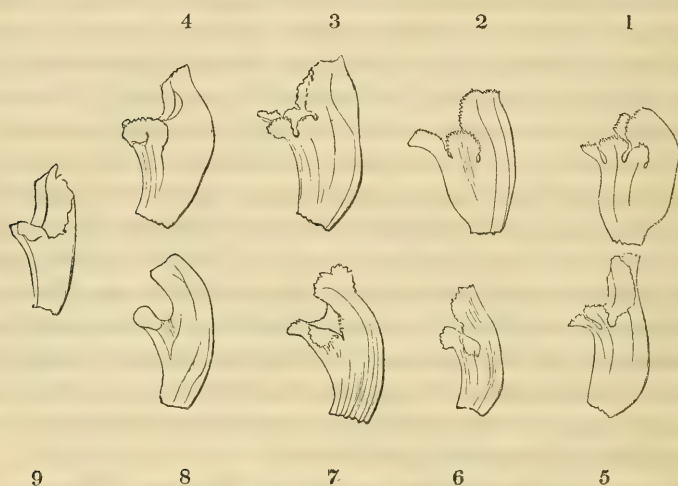
The Orobanches were very abundant and in good condition, but I

was not able to do much in determining the species. Koch, and after him Babington, depend much upon the nerves of the sepals, but of the species described by the former writer, as having only one or two nerves, I know nothing; and all our difficulties lie with the many-nerved species. Babington indeed gives to *O. rubra* only a single nerve, but he cites, though with a mark of doubt, Koch's *O. epithymum*; and Koch cites, under = *O. epithymum*, the figure of *O. rubra* in 'English Botany,' but with the addition—*pessima*, in which everybody will agree with him. As far, however, as it is possible to judge from such a figure, I should say that *O. rubra* and *O. epithymum* cannot be the same. In the *O. epithymum* of Fontainebleau, the nervation of the calyx is the same as in its allied species, that is, a distinct nerve to each division, and smaller lateral nerves or veins: I may say the same of a specimen of *O. rubra* from Staffa, given to me, I believe, by Mr. J. Hooker, now Dr. Hooker. I can make little more of the insertion of the stamens, which is always *near* and never *at* the base of the corolla. The hairiness or villosity (without glands) at the inner base of the filaments, may serve to separate *O. major* from other species, and *O. concolor* has only scattered hairs. In *amethystea* these hairs are very short and close, and limited in their extent. All the species seem subject to have glandular hairs upon the upper part of the anthers and of the styles, which, in the latter part, sometimes extend on to the germen. The yellow stigma is perhaps of importance, but unfortunately we lose this in drying. I have given on the next page a few forms of corolla, which perhaps are as useful as most points in determining the species.

1. *O. major*. Fontainebleau, on broom. Stigmas yellow.
2. *O. cruenta*. Dreux, on *Hippocrepis comosa*.
3. *O. caryophyllea*. Fontainebleau. Flowers nearly pink: stigmas purple.
4. *O. caryophyllea*? Orleans, growing among grass and bushes. It had the clove smell, but this is occasionally met with in several species.
5. *O. epithymum*. Fontainebleau, on *Thymus Serpyllum*. Stigmas purple. I could always readily distinguish this by the strong venation of the petals, but the veins were marked in colour rather than in substance, and have disappeared in drying. The upper lip was sometimes cloven, sometimes entire, and even now and then trifid.
6. *O. minor*. From near Guildford.
7. *O. amethystea*. Blois, on *Eryngium campestre*. Stigmas purple.

A beautiful plant, easily known by its dense spikes and the long points of its bracteas and calyces.

8. *O. Teucriti*. Fontainebleau, on *Teucrium montanum* and *Chamaedrys*. Snuff-coloured, nearly veinless. The insertion of the stamens is higher than in *O. epithymum*, and the lips of the corolla are more separate. The botanists of Paris seem disposed to unite these species.
9. *O. concolor*. Fontainebleau. Corolla and stigmas yellow. I saw only two specimens, and could not ascertain to what plant they were attached. They agreed perfectly with Boreau's description, — '*Flore du Centre de la France*,' p. 344.



1. *Orobanche major*. 2. *O. cruenta*. 3. *O. caryophyllea*. 4. *O. caryophyllea*? 5. *O. epithymum*
6. *O. minor*. 7. *O. amethystea*. 8. *O. Teucriti*. 9. *O. concolor*.

From this plain I again ascended a hill on the right of the road to Reclose, where I found abundance of *Coronilla coronata* and *Linum tenuifolium*: and passing that road and the hollow in which it runs, ascended the *Rocher des Putaines*, now more delicately called the *Rocher des Demoiselles*, on the top of which again are some *mures*, which were not productive. Among these rocks, and in other similar places, I noticed *Pyrus Aria*, but did not fall in with any trees of *P. latifolia*, which is said to occur in the forest, but which, however, from specimens in the French herbarium of the Jardin des Plantes, appears to be the same as *P. hybrida* of the '*Flora Britannica*,' 534.

On the 21st I set out on the road to Melun, and turning to the right examined a detached ridge, which, as usual where there are no *mares*

was unproductive; and then descended towards the river. The lower strata seem here to be chalky, and the Orchideæ were abundant, chiefly about and beyond a little pool, where a by-road turns up from the river towards Samois. They were *Epipactis rubra* in great beauty, *E. atropurpurea*, *Ophrys arachnites*, *O. apifera*, *Listera ovata*, *Aceras anthropophora* and *Orchis pyramidalis*, all growing together and abundant. On a little hill descending from this pool, the banks were covered with *Equisetum hyemale*.

I did not find *Euphorbia Lathyris*, which is said to grow at Valvins. In my way back I met with *Althæa hirsuta*. Afterwards I climbed up a sandy ridge, the *point de vue* of Queen Amelia, and a very beautiful one it is, commanding a variety of rock and wood, of barren slopes and of the cultivated valley beneath. The other more common plants of the walk were: —

<i>Monotropa Hypopitys</i>	<i>Vicia lutea</i>	<i>Sedum Cepæa</i>
<i>Poa compressa</i>	<i>Ajuga Chamæpitys</i>	<i>Ornithogalum pyrenaicum</i>
<i>Festuca uniglumis</i>	<i>Crepis tectorum</i>	<i>Campanula persicifolia</i>
<i>Rubus affinis</i>	<i>Astragalus glycyphyllos</i>	<i>Orobanche epithymum</i>
<i>Linum tenuifolium</i>	<i>Gentiana cruciata</i> , not in fl.	<i>Plantago arenaria</i>

These were the three walks at Fontainebleau recommended by M. de Jussieu, except that, omitting my earlier aberrations, I ought to have returned, after finding the Orchises, to the new bridge at La Madelaine, and crossed the Seine to the *Bois de Champagne*. There is, however, a fourth walk to be made, which is very interesting: this is to Franchard, which I visited on the 22nd. The multitude of rocks in this direction is very great, and they are so like each other, and so broken and irregular, that it is a perfect labyrinth, from which it is difficult for a person unacquainted with the forest to extricate himself. The directions, which are very numerous, often serve to increase the perplexity. One finds, on coming into a beaten track, a post, on which is written, "Route allant à Fontainebleau," but nothing to mark in which direction Fontainebleau lies. It is true that the post, in such a case, is usually put on that side of the cross road which is nearest the place specified, but it is not always so, and a person trusting to this rule might be sometimes wofully deceived. Then we have "Route allant à la Route rond," which "route rond" forms a circle of considerable diameter, and one part might lie just in our way, and another very much out of it. The best Botany on the road is, in general, not among the rocks, but on some dry and barren banks where the sandstone seems to be capped with a calcareous deposit. Here grow: —

Trinia glaberrima	Hypochæris maculata	Arenaria setacea
Teucrium montanum	Epipactis rubra	Helianthemum apenninum
Ononis Columnæ	Euphorbia Esula	H. Fumana
Inula hirta		

About Franchard are numerous *mares*, as usual upon the top of the hill. In one of these, beyond the *Rocher qui pleure*, I met with an abundance of Bulliarda: *Ranunculus nodiflorus* and *Juncus pygmæus* also occur, and in the same neighbourhood likewise grows *Elatine hexandra*. On a former occasion I recollect to have observed *Pilularia*. In this part also, in the largest *mare*, and at a very short distance from Franchard, *Airopsis agrostidea* is found, but I was too early to hope for it at this time, and on a later occasion (August 4th) I was equally unsuccessful. The *Rocher qui pleure* is a rock hollowed out beneath, from which a few drops of water continually proceed for the greater part of the year. It is not easy to determine whence this water proceeds, as there seems but little extent at top from which it could receive supplies, and the small pools which existed when I was there, would be dried up in a few days of fine weather. Opposite to this, on some rocks which are perhaps kept moist by some infiltration from the great *mare*, is *Asplenium lanceolatum*.

I was told, on what seemed competent authority, that the voiture (these small-stage carriages are not called diligences) set out for Malesherbes at 5, at half-past 5 and at 6. We started at ten minutes before 6, (no proof that 6 was not the appointed hour), and reached Malesherbes at 9. and I found myself very comfortable at a little inn called l'Etoile, at the entrance of the town.

(To be continued.)

ART. CLXXXIX.—*Rarer Plants observed near Coggeshall, Essex.*
By JABEZ M. GIBSON, Esq.

THE following is a list of some of the more uncommon plants growing in the neighbourhood of Pattiswick, observed by myself in the course of the present summer.

If any of your readers should happen to take a botanical stroll into this neighbourhood, I should feel great pleasure in pointing out the localities of any of these plants, more particularly than can be described in a hasty list like the present; or of affording any information which lies in my power.

- Vicia Bithynica*. Hedge-row of a field called Blackwater field, near the hamlet of that name, plentiful.
- Dipsacus pilosus*. The Water-lane, abundantly.
- Geranium columbinum*. Hedge-banks in several places.
- *pyrenaicum*. Frequent by the road-side between Braintree and Coggeshall.
- Lathyrus Nissolia*. Dry hedge-banks, not unfrequent.
- Epipactis purpurata*. Three plants found in the west corner of Monks' wood.
- Galium tricornae*. Gravelly hedge-banks.
- Linaria spuria* and *minor*. Corn-fields, frequent.
- Gnaphalium sylvaticum*. Old gravel-pit near Blackwater.
- Iberis amara*. Corn-fields near Pattiswick church.
- Typha angustifolia*. Blackwater river.
- Papaver Argemone* and *dubium*. Corn-fields, not unfrequent.
- Dianthus Armeria*. Road-sides, not unfrequent.
- Paris quadrifolia*. Abundant in most of the neighbouring woods.
- Convallaria majalis*. Plentiful in Monks' and Nuns' woods.
- Myosurus minimus*. Corn-fields, frequent.
- Vinca major* & *minor*. Woods and hedges.
- Erysimum cheiranthoides*. Corn-fields, not unfrequent.
- Ribes nigrum*. Banks of Blackwater river.
- Hottonia palustris*. Common in ponds in Monks' wood.
- Cardamine amara*. Small rivulets and ditches, frequent.
- Rubus Idæus*. Gravel-pit near Blackwater.
- Scirpus sylvaticus*. Banks of Blackwater river and in bogs in the neighbourhood.
- Polygonum amphibium*. Ponds, occasionally.
- Achillæa Ptarmica*. Banks of a pond near the church.
- Myosotis cæspitosus*. Common in some ponds in Monks' wood.
- Galeobdolon luteum*. Damp hedge-banks, not uncommon.
- Orobanche elatior*. Clover-fields, occasionally.
- Aquilegia vulgaris*. Plantations of fir near the church.
- Daphne Laureola*. Woods, not uncommon.
- Triglochin palustre*. Meadows by Blackwater river.
- Potentilla argentea*. Dry banks, frequent.
- Pyrus torminalis*. Monks' wood, occasionally.
- Prunus Cerasus*. Hedges and woods, not unfrequent.
- *insititia*. Hedges, but rarely.
- Carduus Marianus*. Gravelly hedge between Blackwater and Stisted.
- Senecio viscosus*. Gravelly banks on the common.
- Chlora perfoliata*. Sides of fields, occasionally.
- Chenopodium polyspermum*. Waste ground not uncommon.
- Castanea vulgaris*. Woods, not uncommon.

JABEZ M. GIBSON.

Pattiswick Hall, near Coggeshall,
Essex, October 24, 1843.

ART. CXC.—Notice of 'The Naturalists' Pocket Almanack for 1844.'
London: John Van Voorst, Paternoster Row.

FOR the information of such of our readers as may not have formed an acquaintance with this useful little almanack during the first year

of its appearance, we may briefly state that in addition to the calendar, length of day, and the rising and setting of the sun and moon, the days and hours of meeting of the various scientific societies of the metropolis are regularly specified, together with short notices of the arrival and departure of birds, the flowering of plants, the appearance of insects, and other interesting remarks relating to Natural History. But the principal feature in the present year's almanack is the best and most compendious descriptive list of the British ferns and their allies that we have yet met with. In the nomenclature of this list we observe several departures from that adopted by Mr. Babington in his 'Manual of British Botany.' For instance, in the *Equisetums* the nomenclature and arrangement proposed by Mr. Newman in our own pages are followed. In the ferns we find some striking novelties. Among these is a full description of the involucre of *Pteris*: we quote the entire character of that genus.

"*PTERIS*, *Linneus*. — Mid-vein distinct, lateral veins anastomosing at margin forming a marginal vein. Involucre attached to inner side of marginal vein, linear, its margin split into capillary segments; capsules attached in a linear series to marginal vein, exterior to involucre; epidermis prolonged bleached reflexed split into capillary segments and covering capsules in the manner of an involucre."—p. 11.

The second point to be noticed appears at first sight to be a daring innovation; on reflection, however, we feel inclined to admit it as being a more natural arrangement than the old one. We allude to the removal from the genus *Polypodium* of the species *Dryopteris*, *calcareum* and *Phegopteris*, thus leaving *Polypodium vulgare* as the only British representative of its genus. The three rejected species, together with *Oreopteris* and *Thelypteris*, form in the list the first division of Bory's genus, *Lastræa*, characterized by having the "Clusters of capsules on all branches of lateral veins," not on the anterior branch only, as in *Polypodium* and *Lastræa* proper. The next thing we shall notice is that the three plants *Lastræa spinosa*, *dilatata* and *recurva* are raised to the rank of species, and as such now described for the first time in an English work. We quote the descriptions.

"9. *L. spinosa* (Roth). *Lastræa dilatata* linear type Newm 61 fig. Bab 386. Rhizoma very stout, slowly but extensively creeping; stem as long as frond, clothed sparingly except at the base with broad rounded pale brown diaphanous scales; frond nearly erect, elongate linear pinnate, pinnæ rather distant (1—8 pairs of equal length, the lower pair neither longer nor shorter than the rest) winged pinnate; pinnules at the base of pinnæ separated from the midrib by a deep notch, toward the apex of pinnæ decurrent, all lobed, the lobes serrated and spined; divisions at apex of frond narrow, their terminations acute, all divisions of frond flat; involucre nearly circular, its margins waved not torn nor furnished with teeth or stalked glands; clusters of capsules circular

crowded, sometimes confluent, confined to the upper portion of the frond. This common fern was included by Linneus under his *Polypodium cristatum*, and by Muller in the 'Flora Danica' under his *P. spinulosum*, but the first intelligible description as a separate species is in Roth's 'Flora Germanica;' it is not the *Aspidium spinulosum* of Willdenow, Schkuhr, Decandolle, Smith, Hooker or Mackay, all of which are probably referrible to the next species. Common, marshes and woods; in moist woods it is more luxuriant, only semierect, and has a somewhat different aspect. Mature in September.

"10. *L. dilatata* (Hoffmann). Newm 58 fig. Bab 386, *Aspidium spinulosum, dilatatum* and *dumetorum* Sm iv 279, *Aspid. spinulosum* Hook 440, Mack 340. Rhizoma tufted; stem very stout, nearly as long as frond, densely clothed with *long pointed scales which are dark brown along the middle but pale at the edges*; frond glandular very large deep green drooping ovate-lanceolate pinnate, *lowest pair of pinnæ shorter than 2nd 3rd 4th or 5th*, pinnæ pinnate; pinnules pinnate or pinnatifid, ultimate divisions serrated spined, all divisions of frond *convex*; involucre nearly circular *fringed with stalked glands*; clusters of capsules circular distinct covering every part of frond: mature in September. Common everywhere.

"11. *L. recurva* (Bree). *L. dilatata* concave type, Newm 61. Rhizoma tufted; stem as long as frond *woody* clothed with *long narrow lacinate scales*; frond *triangular* drooping elegant pale green pinnate, lower pair of pinnæ *longest stalked*, all pinnate; pinnules pinnate or pinnatifid, all divisions of frond *concave*; involucre nearly circular *jagged at its margin without stalked glands*; clusters of capsules round crowded, covering every part of frond: mature in September. Abundant in Ireland and Cornwall; occurs in Cumberland, Devonshire, Sussex, &c."—p. 23.

In the genus *Athyrium*, the convex form of *A. Filix-femina* appears as a species under the name of *A. rhæticum* of Roth, and, with a mark of doubt, as the *Polypodium rhæticum* of Linnæus; a new species of *Athyrium*—the *A. molle* of Hoffmann—is also introduced, of which the following is the description.

"† 3. *A. molle* (Hoffmann). Stalk still shorter [than in *rhæticum*], its scales broad and shorter; frond semi-erect bright green ovate-lanceolate pinnate, pinnæ pinnate, their midrib winged, lower pair very distant short deltoid deflexed; pinnules *flat united by wing of midrib* lobed, lobes 2—3 toothed; clusters of capsules distinct 5—7 pairs: mature in September. Common in damp places."—p. 26.

The new British *Cystopteris*, the *C. montana* of Link and Presl, has already been described and figured in our pages, (*Phytol.* 671).

The above are the principal points of interest which have struck us in going through this useful list; if naturalists approve of the plan, it is to be followed in subsequent years by similar lists of British quadrupeds, butterflies, Orchideæ, &c.

ART. CXCI.—*Supplement to the List of Saffron-Walden Plants,*
(*Phytol.* 408). By G. S. GIBSON, Esq.

- **Thalictrum flavum*. At Sawston.
Ranunculus parviflorus. Road-side at Sampford.
Corydalis lutea. Old walls, Walden, naturalized.
Alyssum calycinum. One plant found in a field between Linton and Hildersham.
Linum perenne. Chalky banks by the road between Chesterford and Bourne bridge.
Geranium pyrenaicum. Waste ground, Walden.
 ——— *columbinum*. Clover-field near Thaxted.
 **Erodium moschatum*. Once found at Walden.
Hypericum humifusum. Thriplow heath.
Ononis antiquorum. Road-sides, frequent.
Medicago denticulata. In a clover-field at Walden, probably introduced.
Trifolium arvense. Near Newport, not common.
Lotus tenuis. Little Walden park &c.
Astragalus hypoglottis. Thriplow heath and near Babraham.
Spiræa salicifolia. Road-side at New Sampford, probably the outcast of a garden.
Ceratophyllum demersum and *Myriophyllum verticillatum*. Ditches at Sawston.
Apium graveolens & *Smyrniolum Olusatrum*. Marshy meadows near Sawston.
Caucalis daucoides. Corn-fields near Chris-hall grange.
Cenanthe pimpinelloides. Meadows at Sawston, in fresh-water marshes.
Epilobium palustre. Ditches at Wimbish and Sawston.
Ribes nigrum. Banks of a rivulet at Wenden, some distance from houses.
Lonicera Caprifolium. Thickets at Audley End, probably planted.
Galium uliginosum. Moist meadows at Chesterford.
Crepis setosa. This plant, hitherto unobserved in Britain, was found sparingly in a clover-field near Wimbish, and had probably been introduced with the clover-seed.
Apargia hirta. Meadows at Sawston.
 **Leontodon palustre*. Sawston fen.
Hieracium sylvaticum. How wood, Littlebury.
Centaurea solstitialis. A few plants were found this year in two clover-fields at Waldein, introduced with the clover, which was grown from foreign seed.
Senecio erucaeifolius. Road-sides, not uncommon.
 **Pulmonaria officinalis*. Near a wood at Horseheath.
Myosotis sylvatica. Woods near Walden, frequent.
 ——— *collina*. Dry ground near Newport.
 **Pinguicula vulgaris*. At Sawston.
 **Utricularia vulgaris*. Thriplow heath.
Veronica polita? Corn-fields, Walden.
 *——— *scutellata*. At Sawston.
Mentha arvensis. Corn-fields &c. not uncommon.
Melissa officinalis. Margin of a rivulet at Clavering.
Galeopsis versicolor. One specimen found at Sawston.
 **Lamium maculatum*. Audley End.
 **Lysimachia vulgaris*. Near Sawston.
Samolus Valerandi. Meadows at Sawston.
Rumex viridis. Shady places, frequent.
Salix acuminata. Road-side at Hadstock.
 ——— *aurita*. Audley End &c.
 ——— *decipiens*? Near Walden.
 ——— *ferruginea, rugosa, rubra, Smithiana, undulata*. Audley End, according to Leefe's 'British Willows,' fasc. I.

- Alisma ranunculoides*. Ditches at Sawston
 **Sparganium simplex*. Ditto at Chesterford
Lemna gibba and *Potamogeton pusillus*. At Sawston.
Lilium Martagon. In an old coppice hedge and in a wood at Sampford, where it has grown for at least thirty years, and probably a much longer time.
 **Muscari racemosum*. Near Sawston.
Triglochin palustre. Wendon & Sawston.
 **Epipactis palustris*. At Sawston.
- Schænus nigricans*. Abundant at Sawston.
Scirpus sylvaticus. In a rivulet at New Sampford.
 **Cladium Mariscus* and **Eriophorum pubescens*. At Sawston.
Carex muricata. Near Chesterford.
 — *Æderi* and *ovalis*. Meadows at Sawston.
Lolium multiflorum. Fields occasionally.
Equisetum limosum. At Linton.
Asplenium Adiantum-nigrum. Old trees.

Those plants marked with an asterisk, I have not found growing, but have seen specimens which are stated to have been gathered in the localities specified.

Whether the *Œnanthe* found in fresh-water marshes will prove a new species distinct from *pimpinelloides*, is at present uncertain; but the specific differences between it and the salt-marsh plant appear slight.

Chenopodium rubrum and *Salix Hoffmanniana*, which are marked in the former list with a note of interrogation (Phytol. 413), have since been seen; the first at Sawston, the other at Audley End.

Tragopogon pratensis (Id. 411), should have been entered as *T. minor*, and *Habenaria bifolia* (Id. 414) as *H. chlorantha*. *Cuscuta europæa* has not been found here; the specimen on the authority of which it was inserted, was gathered some years ago, and proves on examination to be *C. Trifolii*.

I also feel some doubt as to whether *Luzula Forsteri* has been found here; and of a permanent locality for *Mentha viridis*.

G. S. GIBSON.

Saffron Walden, November, 1843.

ART. CXCII.—*Varieties.*

415. *Correction of an error in the description of Equisetum Telmateia.* In my description of this species (Phytol. 723) I have made this observation:—"Mr. Watson, in one of the passages above referred to, states that horses graze on it (Phytol. 588)." By a reference to this passage it will be seen that Mr. Watson remarks that "it is a notion among the rustics of Cheshire that horses get bogged by their endeavours to graze on this plant," &c. I beg to offer my thanks to Mr. Watson, for calling my attention to this inaccuracy.—*Edward Newman; Hanover St., Peckham, November, 1843.*

416. *What is the Polypodium fragrans of Linneus?* This fern is absent from nearly all our descriptive lists. Wahlenberg, Roth, De-

candolle, Sadler, Smith, Hooker, Dietrich, Babington, and many others, appear to take no notice of it. It seems *highly* probably that the fern did exist formerly, and *scarcely* probable that it has become extinct: it will be recollected also that our two *fragrant* ferns, *Lastrea rigida* and *L. Oreopteris*, are absent from those works in which *P. fragrans* is described, so that it *may possibly* be one of these. I have endeavoured to collect all the evidence within my reach, as to the claims of *rigida* or *Oreopteris* to the title of *fragrans*; and before immolating a well-established name on the altar of priority, I shall feel extremely obliged to any botanist who can give me information as to *the present existence* of the Linnean *Polypodium fragrans*. *Id.*

417. *On assisting Nature in the dissemination of Plants.* Although I concur in Dr. Bromfield's observation that this practice is "highly reprehensible" (Phytol. 806), and admit such to be *the rule*, yet I cannot help pleading somewhat earnestly for what I consider *the exception*. The *rule* appears to me to bear on all those cases in which the act is committed for purposes of deception, and the *exception* on those cases in which exotic plants are avowedly introduced to beautify our woods and wilds. I have, I believe, succeeded in establishing three beautiful North-American ferns — *Sitolobium pubescens*, *Onoclea sensibilis* and *Cystopteris bulbifera*, and I think he were a slender botanist who fell into the error of supposing them natives of Britain.—*Id.* December, 1843.

418. *Note on Oxalis corniculata.* As Devonshire is, I believe, considered the strong hold for *Oxalis corniculata*, as an English plant, the following notice of it may not be quite devoid of interest to your readers. Though I have never found it truly wild, that is, in such places as its more elegant congener loves to inhabit, yet in several situations where ground has been recently ploughed or dug up, it has made its appearance. Here (Lympstone) it has sprung up spontaneously in a garden where it was unknown before the spade brought the seeds to the surface; this also happened in a recently ploughed field adjoining: and in the rich earth procured for a melon-bed, it grows most luxuriantly, in fact it is a troublesome weed; this I have also known to occur in a garden at Teignmouth. That the seeds of plants may lie dormant for a long time, and yet, when some accidental circumstance favours their growth, may burst their covering and appear where we should least expect them, is well known, and has been before proved in the pages of 'The Phytologist;' but the fact of these seeds being there to germinate, proves one of these two things,—that the plant in question was either formerly much cultivated in South Devon, and so naturalized, or that it is one of the indigenous products

of our soil; which of the two deductions is the right one, I do not feel myself competent to determine, though as regards the first, I can say that if it was formerly a common plant in gardens, it is not so now by any means, and I have not once seen it in a state of cultivation in the neighbourhood.—*Robert C. R. Jordan; Lympstone, Nov. 15, 1843.*

419. *Note on Mr. Gibson's Hieracium hypochæroides.* My former remarks upon this plant (Phytol. 801) are fully confirmed by the authentic specimen, for the inspection of which I am indebted to the editor of 'The Phytologist.' It is an identical species with the specimens of Mr. Ward, Mr. Tatham, Mr. Gardiner, and others mentioned in my former communication. In his parcels of the present year, Mr. Gardiner labels the plant "*Hieracium murorum, L., β . pulmonarium, Sm.*" I fully concur with Mr. Gardiner in looking upon it as a form of *H. murorum*, though not the *H. pulmonarium* of Smith. The *H. maculatum* of 'English Botany' scarcely differs, except by its more numerous flowers and stem-leaves, and by the stronger teeth of the leaves. These characters are variable in the other forms of *H. murorum*, in their wild states, and are commonly increased by cultivation. In regarding *H. maculatum* as a luxuriant state of *H. murorum*, rather than joining it with *H. sylvaticum*, I am probably almost alone.—*Hewett C. Watson; Thames Ditton, November 20, 1843.*

420. *Mr. Bowman on the specific identity of Hieracium murorum and H. maculatum.* Believing this union to be correct, although in opposition to the views of Hooker and Babington, I crave a corner in 'The Phytologist' for the following unpublished note, furnished to me by the late Mr. J. E. Bowman. It was only this day that I met with the note, in a list of localities sent for the 'New Botanist's Guide,' about the year 1834; but being written under the head of "*H. murorum*" (a species too common for introduction into the Guide), it had been passed over, and quite forgotten if ever read. "After long and repeated observations on numerous Welsh specimens from various localities, I am satisfied, notwithstanding what is said in 'English Flora,' that this species and *H. maculatum* cannot be separated. Neither the shape of their leaves, nor their spots, nor the solitary leaf on the stem, can be relied on. I have specimens that precisely agree with Smith's *H. murorum*, only the leaves are spotted; and others that correspond with his *H. maculatum*, except that the stem is solid and has only a single leaf. * * I have some specimens [of a *Hieracium*] from the Breidden, which it is next to impossible to identify, and I have sometimes thought they may be a new species." So entirely had this note escaped proper attention at the time, that I took

the locality of Breidden Hill, from the 'English Flora,' and printed it for "*H. sylvaticum, maculatum.*"—*Id. November 27.*

421. *Note on Carex paradoxa.* Having observed in your last number an allusion to the existence of *Carex paradoxa* near York (Phytol. 779), I am induced to send you a short account of its discovery. It was first found by myself in Heslington fields, in April, 1841, and a few weeks afterwards in Ascham bogs, an immense marsh about three miles S. of York; in both which localities it grows in the greatest abundance. At that time I referred it, though doubtfully, to *C. teretiuscula*; but from this I observed that it differed in its mode of growth (forming compact tufts or stools like those of *C. paniculata*), in its larger panicle, more numerous striated fruit, &c., and I thought it not improbable that it might prove to be the *C. paradoxa* alluded to in Hooker's Flora under *C. paniculata*. I possessed, however, neither specimen nor description of that species with which to compare my plant, and my attention has been since then so completely engrossed by other departments of Botany, that I neglected to take the opinion of any of my friends capable of deciding on such a subject. Mr. Borrer, whom I had the pleasure of seeing in York in the early part of September last, first informed me that my plant was identical with the Irish *Carex paradoxa*; and more lately I have received similar testimony from Mr. Wilson, who was, I believe, the first to make out Mr. D. Moore's specimens. In Heslington fields, *Carex paradoxa* is accompanied by *C. cæspitosa* (*true*), *C. acuta*, *C. fulva*, *C. dioica* &c. In some parts of Ascham bogs the vegetation is almost entirely composed of *C. paradoxa* and *cæspitosa*, but in the intervals between the tufts it is not uncommon to find a few scattered plants of *C. filiformis*, a plant which grows abundantly in bogs on some of our moors in the Vale of York. *Carex paniculata* grows also in Ascham bogs, and attains an enormous size, but I do not recollect having seen it growing side by side with *C. paradoxa*. I believe the latter matures its fruit two or three weeks earlier than the former. We have not the true *C. teretiuscula* nearer than Terrington Carr, which is fifteen miles N. of York.—*Richard Spruce; York, November 21, 1843.*

422. *Note on Carex axillaris.* This plant does *not* grow in Heslington fields, as has been supposed (Phytol. 199), but it occurs in considerable quantity at the margins of brick-ponds on Hob-moor, near this city, where my attention was first directed to it by my friend Mr. O. A. Moore, in June, 1842. The Carices growing along with it are *C. remota*, *vulpina*, *Pseudo-Cyperus*, &c.; of these, *C. vulpina* is by far the most like *C. axillaris* in habit, but the *concave surfaces*, and

consequently *very acute angles* of the stem, will always suffice to distinguish the former, without any other characters. I am not at all surprised that *C. axillaris* and *divulsa* have sometimes been confounded, which might very easily happen if the botanist were guided solely by the very meager descriptions in Hooker's *Flora*; and the two species really differ very little in external aspect. Mr. Borrer tells me that *our C. axillaris*, at least, is not *C. boenninghausiana*.—*Id.*

423. *Note on Veronica triphyllos.* This interesting little plant was discovered in the spring of 1842, by Mr. Weatherill of this city, near the village of Nether Poppleton, and it is perhaps generally distributed over the sandy district which extends to a considerable distance westward of York, as I have observed it during the past spring and summer in three or four stations some miles distant from each other. Near Poppleton it grew abundantly in a stubble-field, as well as in an adjoining sandy lane amongst *Allium oleraceum*; but the place where I have seen it in the greatest luxuriance, is in the lane leading from Acombe to Ascham, where a quantity of brambles and briers had been cut away. *Alyssum calycinum* has also been discovered by the same gentleman, growing with the *Veronica*, but in very small quantity.—*Id.*

424. *Veronica Buxbaumii* has been found in several places near York during the last three years, but only by two or three plants at a time, and as I have not heard of its being observed in the same station for two consecutive seasons, I conclude that it is an introduced plant.—*Id.*

425. *Note on the Manchester Carex.* I am led to believe from the following circumstances, that the statement of Mr. Gibson, wherein he regrets that the locality of his *Carex pseudo-paradoxa* is a secret (*Phytol.* 778), has reference to a conversation between Mr. Gibson and myself; may I therefore be allowed, through the medium of your valuable journal, to vindicate myself from such an imputation? Mr. Gibson called on me to enquire if I would go with him to gather the plant; but at the time I was so engaged in business that it was not in my power to do so. He then asked of me the locality, and if I could give him particular directions? Now, as he was a stranger to that part of the country, and the plant by no means easily to be found, I said I feared I could not, and told him the reason; but said I could give him a number of specimens, as I had gathered it largely. After some conversation on the subject, he said if *I had* given him the locality, so that he could have found the plant, it was his intention to have cut it all down, if possible. On this ground I felt myself justified in withholding all further information; for although no locality

ought to be kept secret, when the knowledge of it might prove of advantage to science, or contribute to the pleasure of a fellow-student, yet after such a threat, was I not justified in retaining the information? — *George Crozier*; 111, *Shudehill, Manchester, November 23, 1843.*

426. *Note on the Botany of France.* I have been highly pleased with Mr. Woods' paper on the Botany of France (*Phytol.* 785). There is no place to which an English botanist is so likely to go, and even to fire-side travellers it must be pleasant to compare the Flora of an opposite shore with our own. I will just mention, that on Mont St. Katherine near Rouen, I found, two years ago, plenty of *Bupleurum falcatum*. The two plants that most attracted my eye between Havre and Paris were *Mercurialis annua* and *Eryngium campestre*. — *Geo. Sparkes*; *Bromley, in Kent, December 5, 1843.*

427. *Note on Potass and Soda produced by the ashes of Plants.* It has been for a long time the general opinion, that the ashes of inland plants produce potass, of maritime plants soda. Whether maritime plants removed inland would continue to secrete soda, is an interesting enquiry, and is a point on which Sir James Smith and Prof. Liebig, although they do not absolutely contradict each other, can scarcely be said to agree. While things are in this uncertain condition, I have been much astonished at perusing Hartwig's analysis of the ashes of inland plants, and observing the large proportion of soda which he professes to have found in them; for example: —

	Carb Potass.		Carb. Soda.
In Beech wood,.....	11·72		12·37
Hanoverian tobacco,	0		1·61
Bean-straw,	13·32		16·06
Pea-straw,.....	4·16		8·27

It would be well if some English chemist were to repeat these experiments.—*Id.*

428. *Note on Agarics.* I have eaten, this season, *Agaricus personatus* and *nebularis*. The former, which is occasionally eaten, is not very pleasant; but the latter I can highly recommend. I have scarcely found a single specimen of *Agaricus deliciosus* this season. Those of your readers who have paid no attention to Fungi, may be interested in knowing that by taking an Agaric not quite full grown, cutting the stalk off, and placing the top on a sheet of white paper, the gills downward, they will obtain a copious supply of sporules. As in most Agarics these are white, coloured paper is the most appropriate. The existence of ammonia in ketchup may be shown by adding quicklime to it. The ammonia may be recognized by its smell, or by holding

over it a piece of litmus paper which has been partially reddened by an acid.—*Id.*

429. *Note on Aspidium spinulosum.* I feel obliged to your correspondent Mr. Forster (Phytol. 814), for correcting an error which I inadvertently fell into (*Id.* 774) in stating that “the application of the specific name of *spinulosum* to a British fern (first adopted, I believe, by Smith and Sowerby in ‘English Botany’) originated in error,” — a blunder this, on my part, the more strange, as it is distinctly stated in the letter-press of ‘English Botany,’ that “Dr. Withering first made it known as a British plant.” In my own defence, however, I must observe, that it is not recorded in Withering’s second edition, printed in 1792, to which alone I had access. My principal object in the remarks I made, was to warn botanists not to take up their notions about *Aspidium spinulosum* from the figure and account in ‘English Botany,’ where an error certainly is committed, Mr. Mackay having avowed to me that the plant there represented turned out to be only a young or starved specimen of *A. dilatatum*. I am quite aware that Mr. Dickson “nowhere published *A. spinulosum* ;” but I know that he was well acquainted with the fern, as well as with what I have called *recurvum*, and that he maintained them to be distinct species, and each of them distinct from *dilatatum*. For distinction’s sake I have been in the habit of calling this much-disputed species “*Dickson’s spinulosum*,” because at the period when I conversed with him on the subject, he was the only botanist with whom I was personally acquainted, who appeared to me to have an accurate knowledge of the plant in question.—*W. T. Bree; Allesley Rectory, December 8, 1843.*

430. *New locality for Saxifraga crenata*, Bab. C. C. Babington, in his ‘Manual of British Botany,’ considers this plant a doubtful native at Hezleden Gill; but when he was here this autumn, and visited the place, he was convinced of its being indigenous. C. C. Babington and your readers in general will be glad to learn that since then the Rev. John Howson has found the same plant at Lynn Gill, but not in such profusion as at Hezleden Gill. Lynn Gill is about four and a half miles from Hezleden Gill, and about thirteen miles from Settle; the plant is found on the north-east side of the valley, about twenty yards above the waterfall; the high range of hills, part of the Penine chain which passes through Yorkshire, separates the two localities. — *John Tatham, jun.; Settle, 12th Mo. (December) 7, 1843.*

431. *Note on Hieracium prenanthoides.* C. C. Babington, when at Settle, found one plant of *Hieracium prenanthoides*, since then I have seen six others; they are all on the east bank of the Ribble near the

village of Stainforth: *Hieracium Lawsoni*, *Smith*, is abundant at the same place.—*Id.*

432. *Observations on the dissemination of Seeds of Plants.* As a question has been raised by Dr. Bromfield, whether it be right to "assist nature in the dissemination of plants" (Phytol. 806), and this being a question on which it seems desirable that botanists should make up their minds, I think it may not be amiss to discuss it at greater length than has been done by that gentleman, especially as he has taken the negative side. The main reason given by Dr. Bromfield for entertaining this opinion, is the confusion which would be created in Vegetable Geography, if botanists were to take upon themselves to scatter seeds. It is true that another reason is glanced at, but in reference to this perhaps I may be allowed to say, that I cannot see any greater moral iniquity in sowing seeds to gratify the eye, than in sowing them to gratify the palate. With respect to Vegetable Geography, the most interesting part is that which treats of the affinity of certain plants for certain soils; and it appears to me that this is not only *not* endangered by the course which Dr. Bromfield denounces, but that it is assisted rather than otherwise. Thus, the seeds of a plant found usually on a gravelly or sandy soil, are perhaps sown by the botanist on a chalky soil, where, if they germinate and flourish, an error may be corrected by its being shown that such a plant is not so peculiar to a sandy or gravelly soil, as that it will not flourish upon a chalky one; on the other hand, if the seeds perish, or if the plants produced from them do not flourish, there is at least strong presumptive evidence that the chalky soil is not adapted for their growth. In either case, it is not likely that a botanist will be led into an error in this respect. As to the geographical distribution of plants, a study which, when separated from the other branch of the subject, is a matter of much less interest, it can never, I think, be endangered by the occasional assistance afforded by botanists in the production of plants, especially if they make known (as they should do) the fact of their having given such assistance; but even if this information were withheld, the fact of such assistance having been rendered would in most cases be apparent, especially if the plants disseminated are known to be otherwise peculiar to other countries. There is another objection stated by Dr. Bromfield, namely, that the working botanist is misled and disappointed, in finding that he has in reality only discovered an artificial station, when he had flattered himself he had met with a new natural one. It is true, that in such a case, the botanist will in all probability undergo some disappointment, and that this disappoint-

ment will most likely exceed the pleasure of finding the plant, and seeing it growing there, before and after he knows this. To prevent such disappointment as much as possible, care should be taken to make known the fact of the station's being an artificial one. Against the disappointment of the botanists of the day, however, is there not to be placed a large amount of pleasure to be derived by future botanists, from the possession of the naturalized plant, when the artificial station shall have become a natural one? Examples may easily be adduced of the pleasure derived by ourselves from such a source. *Impatiens fulva*, for instance, as is well known, grows in the greatest luxuriance along the banks of the river Wey, from considerably above Guildford down to the Thames at Weybridge, and even as low as Barnes (Phytol. 814). Now it is not probable that Vegetable Geography will ever be endangered by this fact, the plant being known to be of American origin: on the other hand, what a pleasure is it to the botanist to see this beautiful plant luxuriating in this country, and to possess in his herbarium specimens of it gathered with his own hand! There may even be instances in which error as to the distribution of a plant might arise by not assisting Nature. For example: the only spot in Britain where *Cyperus fuscus* has been found, is a little marshy meadow surrounded by houses, near Walham-green, Middlesex. There can be no manner of doubt that at some time hence, perhaps even in one year, this meadow will be drained, and either built upon or ploughed up; and then, if no one has taken the precaution of removing some of the plants of *Cyperus* elsewhere, there will be a species lost to Britain. Are we to look on quietly and see our species become extinct before our very eyes, and not move a finger to save them? In such cases at least, may not every objection be made against *not* meddling, which is raised by Dr. Bromfield against the doing so? Indeed it is only just to future botanists to take care that we do not deprive them of pleasure in gratifying ourselves. It is, of course, not desirable that botanists should make a practice of scattering the seeds of any but the rarer plants; but I think we should never run the risk of allowing any species to become extinct. Neither do I think it would be advisable to naturalise many foreign plants: it is more interesting for each country to have its own species; and as far as the geographical distribution of plants is concerned, it might become difficult to register them, and to remember that such species were only naturalized, if this were done to any great extent. I can however see nothing to blame in a botanist's sowing (as has been done by Dr. Bromfield in the case of *Urtica Dodartii*) the seeds of a plant

which is found in but two or three places in a country, because there is no fear, even if this should ever be rendered a common plant, that a sufficient number of others will not remain rare, especially since it is likely that as the study of Botany extends, there will be a greater demand for rare plants. On the contrary, I think we have every reason to thank a botanist for his kindness in propagating a rare plant, not so much for the pleasure we ourselves are to derive from it, as for the pleasure it will in all probability afford to the botanists who are to succeed us. — *G. G. Mill; Kensington, December 9, 1843.*

Erratum. — Phytol. 813, line 9 from bottom, for "Lateral" read "Latent."

ART. CXCIH. — *Proceedings of Societies.*

MICROSCOPICAL SOCIETY OF LONDON.

November 15, 1843.—J. S. Bowerbank, Esq., F.R.S. &c. in the chair.

Mr. A. White read a paper describing the application of a lever movement to the stage of a microscope. It consists of a lever, to the shorter arm of which a ball is firmly screwed, moving in a socket formed by the upper plate of the stage, and a cup, which is a brass plate secured by two screws to that plate. This lever passes through a perforated ball, moving in a socket formed by an arm attached to an immoveable part of the microscope, and a cup formed and secured upon the arm, as in the former instance. This lever is about five inches long, having the longer arm equal to three and the shorter to one. This proportion however varies according to position, and hence the necessity of a perforation in the second ball to allow for it. This construction affords great facility of motion in every direction, and the range in the instrument exhibited was three quarters of an inch.

Mr. Jackson read a paper describing an improvement in the mode of applying a divided glass micrometer to the measurement of objects under examination, described by him in a former paper read September 3, 1841. The micrometer is mounted in a thin brass frame, which slides easily (under a spring) through slits in the opposite sides of the eye-piece, which slits, when not in use, are closed by a quarter revolution of an internal tube having similar slits. Its divisions are $\frac{1}{10}$ of an inch apart, with one of the spaces divided into five by finer lines, which, as they may be readily brought by the sliding of the micrometer into contact with the magnified edge of the object to be examined, afford great facility of measurement. Mr. Jackson concluded with some observations relative to the mode of using this instrument, and of finding the value of its divisions under the various circumstances in which it may be employed.—*J. W.*

THE PHYTOLOGIST.

No. XXXIII.

FEBRUARY, MDCCCXLIV.

PRICE 1s.

ART. CXCIV.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from p. 735).

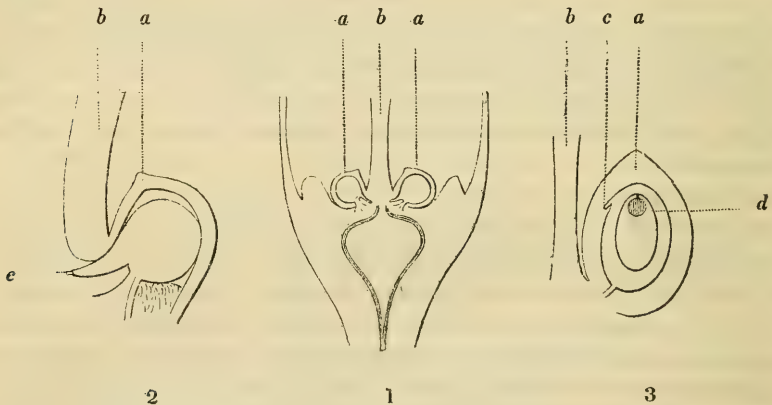
THE introversion of the embryo-sac, although insisted upon as an established fact, is still not an essential part of the theory of Schleiden. It is possible that the apex of the sac might have a minute aperture immediately below the micropyle; or the pollen-tube might, by perforating the membrane, gain admission to the interior, instead of propelling the upper half of the sac, as it is stated to do, into the lower half of the membrane to form a double wrapper for the nascent embryo. And although it is considered that sufficient proof has been obtained that no such introversion takes place, and that thus the entire theory, so far as it rests on the authority of Schleiden, is considerably weakened if not altogether set aside; it is not so easy to dispose of the question whether or not the pollen-tube enters the micropyle: to deny it would be to contravene the statements of some of the most able physiologists of the time, while the most diligent investigations of my own have failed to supply the smallest reason for adopting their views.

Wydler says: — “On doit à M. R. Brown la connaissance de la route que suit le boyau pollinique depuis le stigmate,— jusque dans l’ovule même, en y entrant par son micropyle; mais c’est la que s’arrêtèrent les observations de l’illustre Anglais. Cette route indiquée par lui, fut constatée par les recherches de M. Brongniart fils, comme par celles de M. Corda.”* It also appears that even Mirbel and Spach entertain a similar opinion. For my own part, I have not succeeded in tracing the pollen-tubes very much below the stigma; and perhaps the pains bestowed in this method of investigation might have well been spared, because in most cases the micropyle is so situated with respect to the placenta, that a void space must be traversed by the pollen-tube in its progress thither; or at least the pollen-tube must glide along the surface of the ovule after leaving the placenta, before it can enter the micropyle; and thus, without any very minute

* Annales des Sciences Nat. tome xi. p. 144.

dissection, it should not be difficult to descry the lowest portion of the pollen-tube inserted into the micropyle, at the period immediately succeeding the fecundation of the ovule.

An argument which has been used with far more limited application by Mirbel and Spach, may not be irrelevant here. "Pour défendre avec succès [cet] opinion, il faudrait prouver non seulement que le boyau pollinique acquiert [souvent] une longueur démesurée, *mais encore qu'il est doué d'un sens particulier, à la faveur duquel il se dirige.*"* On the latter point, at least, it may be also said, without danger of contradicting those high authorities, — "Jusqu'à ce jour, cette preuve n'a pas été produite:" and when it is considered that in numberless cases the micropyle is not directed towards the placenta, but turned away from it, and thus placed in the most difficult and unlikely position for access on the part of an organ not endowed with intelligence, it might not be absolutely presumptuous to doubt whether these great observers may not, for once, have been misled by illusory appearances; or at least it may not be unpardonable to ask for additional evidence in support of the statement, to establish it as a general rule.



Myosotis palustris.

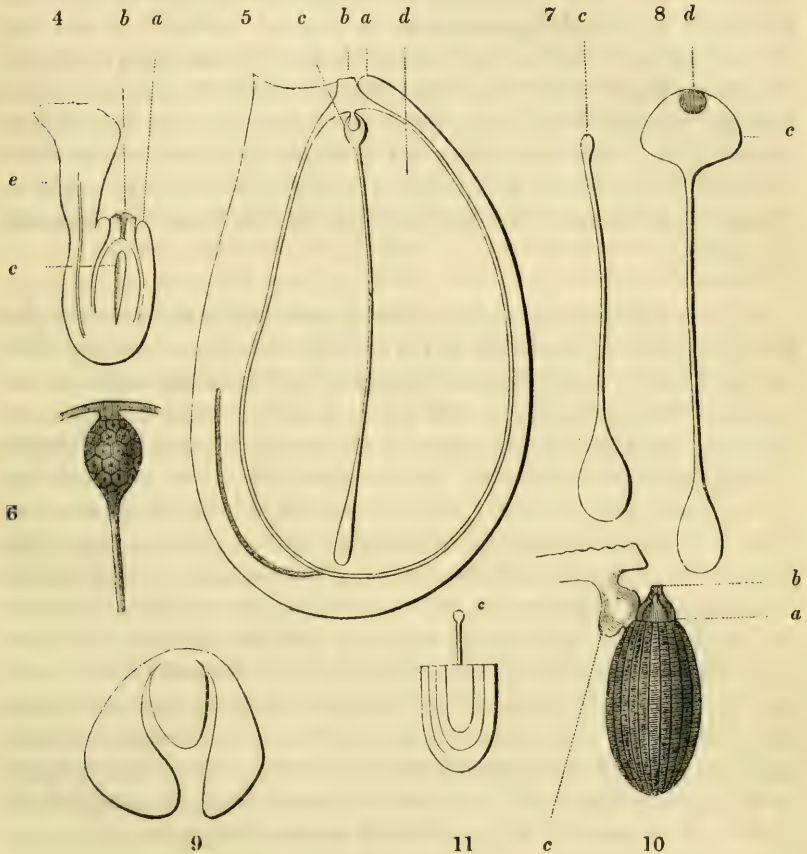
Fig. 1.—Longitudinal section of the base of a flower, showing two of the rudimentary nuts (*a a*) at the base of the style (*b*).

Fig. 2.—One of the rudimentary nuts more highly magnified. *a*. The pericarp. *b*. The style. *c*. The micropyle of the ovule.

Fig. 3.—A nut, half ripe, showing the altered position of the micropyle (*c*), no longer directed towards the base of the style (*b*), but in juxtaposition with the summit of the pericarp (*a*). *d*. The embryo.

The instances in which the micropyle is presented to the placenta, or rather, where it is placed in apposition with the base of the con-

ducting tissue, are comparatively rare ; but a very striking instance, perhaps even more curious than that which occurs in *Statice*, is presented in the plant about to be discussed.



Nuphar lutea.

Fig. 4.—Section of ovule at the time of fecundation. *a.* The primine. *b.* Secundine. *c.* Embryo-sac. *e.* Funiculus.

Fig. 5.—Section of the same, in an advanced state, showing the primary utricle (*c.*) at the summit of the filiform embryo-sac. *d.* The nucleus.

Fig. 6.—Primary utricle of the last, highly magnified.

Fig. 7.—Embryo-sac removed from the surrounding parts, in an earlier stage than it is seen at fig. 5.

Fig. 8.—Embryo-sac, primary utricle (*c.*), and the nascent embryo (*d.*) in a more advanced stage.

Fig. 9.—Section of the embryo when nearly ripe, showing its dicotyledonous structure.

Nymphæa alba.

Fig. 10.—Ovule at the time of fecundation. *a.* Primine. *b.* Secundine. *c.* The funiculus, which afterwards develops itself into an arillus.

Fig. 11.—Section of ditto, showing the embryo-sac and the primary utricle (*c.*).

Myosotis palustris. — At the time of fecundation the ovule is of a globular form, with a bent cylindrical neck, at whose extremity is the micropyle, (see fig. 1 and 2, p. 850). It has some resemblance to a chemical retort, and its neck being turned to the base of the style, the micropyle is placed apparently in immediate contact with the conducting tissue. As the ovule advances towards maturity, the micropyle is gradually withdrawn and elevated, until it is ultimately found near the summit of the ovule, (fig. 3, *c*). The embryo (*d*) has not been observed in its earliest stage, and it would be scarcely possible to trace the pollen-tube, on account of its excessive tenuity, into a micropyle thus situated: the pollen-grains of this plant are unusually diminutive.

Nuphar lutea. — In this plant the embryo-sac is remarkable for its great length, compared with that of the fully-developed embryo, which occupies only a small space at the top of the ripe seed, while the embryo-sac extends throughout its whole length. There is also a considerable thickness of the tissue of the nucleus interposed between the summit of the embryo-sac and the micropyle, at the time of fecundation, (see fig. 4); tending to show that fecundation may take place along the vascular tissue of the funiculus, and through the base of the ovule. It seems at least probable that the nutriment of the embryo is conveyed by that channel, (see fig. 5). At fig. 7 is shown an actual dissection of the embryo-sac, with the primary utricle (*c*) in a very early stage; and another, more advanced, is exhibited at fig. 8. In this the embryo (*d*) appears in its earliest intelligible state: when fully developed, it occupies the whole of the dilated head of the embryo-sac (*c*), and also assumes the same shape. The true structure of the embryo has been a subject of debate, but the section at fig. 9, leaves very little room to doubt that it is dicotyledonous.

Nymphaea alba. — In this the parts are quite analogous to the last, but with several modifications. Here the secundine projects very much beyond the primine, and the nucleus is likewise attenuated at the apex, so as almost to project beyond the micropyle. The funiculus also expands into an arillus, completely investing the ripe seed, (see fig. 10 and 11).

W. WILSON.

Orford Mount, Warrington,
December 2, 1843.

ART. CXCIV.—*Notes of a Botanical Excursion in France, in the Summer of 1843.* By JOSEPH WOODS, Esq., F.L.S.

(Concluded from page 834).

I did not pursue any systematic course at Malesherbes, but made short trips as it suited M. Barnard to accompany me, to point out the localities. But I will present the results of my observations in a more regular form. I will suppose the botanist, therefore, to begin by crossing the river, and taking a road to the right, examine some rocks and sandy banks on the right bank of the valley. This was in fact the first walk I took with M. Barnard. Here he may find *Osmunda regalis*, a remarkable station, as the rocks in general are very dry; *Asplenium viride*, *Tragus racemosus*, and in the neighbourhood of a little spring on the upper part of the slope, *Helosciadium repens*, *Botrychium Lunaria*, and *Schœnus compressus*. The *Helosciadium* is different from any English specimens which I have seen. It has properly no stem, but throws out runners, which produce at the same points roots, leaves and umbels; yet I would not be very positive that it is specifically distinct from *H. nodiflorum*. On the top of the sand rocks a little beyond this spring grows *Juncus capitatus*; and a little higher up, on the stony ground, abundance of *Epipactis atropurpurea*. The habit of the plant, as well as its smaller leaves and dark purple flowers, and earlier time of flowering (June), strongly indicate a specific difference from *E. latifolia*, of which there is abundance in the same place, but not opening its flowers until the other is quite over. We also find here *Helianthemum pulverulentum*, and I think *apenninum*, the latter of which is perhaps a white-flowered variety of *H. vulgare*. *H. polifolium*, as figured in 'English Botany,' differs in its sepals, which are rounded at the top. At this point M. Barnard left me, but we may descend into the marsh and cross it to Ronceval. The principal rarities, as is often the case with the Botany of bogs and marshes in France, consisted of plants more common in England than here: here are *Carex dioica* and *pulicaris*, and several other species are said to be found, but the marsh was everywhere full of water, and though one may go up to one's knees for the certainty of a rare plant, yet one does not like to do so for the chance of a species considered rare by the French botanists, and the additional chance that it would not be so considered by an English one. All the *Carices* that I did see, were in very bad condition, and it was apparently a bad year for them. *Neottia spiralis* is found in these marshes at a

later season ; and on the left hand border *Malaxis Loëselii* is said to grow, but I did not see it. *Chlora perfoliata*, which in this part of France seems always to prefer a boggy situation, also grows here ; and in some of the drier parts, elevated a few inches above the general level, *Inula salicina*. There were also : —

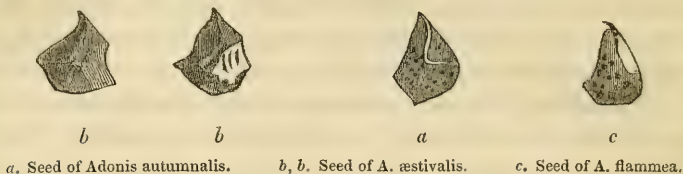
<i>Polygala amara</i> , var. austri-	<i>Scirpus uniglumis</i>	<i>Utricularia minor</i>
<i>Drosera anglica</i> [aca	<i>Schœnus nigricans</i>	<i>Ranunculus Lingua</i>
<i>Aspidium Thelypteris</i>	<i>Sparganium natans</i>	<i>Epipactis palustris</i>
<i>Pinguicula vulgaris</i>		

Before we reach Ronceval, to the left of the path through a pine-wood, M. Barnard finds *Lavandula vera* in abundance, but I missed the spot. *Scabiosa ukranica* grows on some sandy banks, but not in the abundance in which we shall find it in our next walk. I gathered also *Silene Otites*, *Orobanche ramosa*, *Linaria Pelessieriana* and *Polycnemum arvense*.

From Ronceval we may again cross the marshes in a new line, and pass the *Essonne*, either at the bridge below the chateau, or at the Mill *du Tonneau*. In either case we direct our course to the village of Pinson, behind which, on a bank at the edge of the wood, is *Medicago orbicularis*. We then cross the wood by a foot-path, where I ought to have found *Rhus Toxicodendron*. This is probably one of the plants introduced here by M. de Malesherbes, the generous defender of Louis XVI., who amused himself with planting trees and scattering seeds in the woods about the chateau. There are, however, many plants about Malesherbes, which seem to be naturalized rather than genuine natives, but which can hardly be attributed to him. *Prunus Mahaleb* I should think indigenous ; it abounds in the woods, not only here but at Etampes and Pithiviers : and being esteemed a good wood for fuel, it is now planted for that object ; but it seems more probable that a plant, a native of the country and found useful, should be selected, than that a foreign shrub should have been sought out for that purpose. *Cytisus Laburnum* is almost equally common, and is considered also good fuel. This may have spread from the gardens, where it has been early and generally admitted throughout Europe, as an ornamental plant ; yet I should rather suppose it wild originally, though increased to its present quantity by those who have the care of the woods. Nobody would doubt that these plants were in their natural situation if there were only one shrub where now there are a hundred ; their very abundance makes them suspicious. *Prunus Mahaleb* I gathered in a wood near Rouen, and it occurs in the forest of Orleans. For the *Laburnum* we must go

much further to find a position in which it is either certainly or doubtfully a native. Next to these is *Syringa vulgaris*, which occurs sometimes in large patches, and sometimes in scattered bushes, just as we should expect from a native plant. *Colutea arborea* is much less widely diffused; but this, and *Rhus coriaria* and *R. cotinus*, occur at Pithiviers as well as here at Malesherbes. Of *Robinia pseud-acacia* there is not much, except by the road-sides: it is not a good fire-wood. *Spiræa hypericifolia* occurs in several places, and as it cannot be of value for fire-wood, is probably a true native. Keeping still to this wood of Malesherbes, we find, in addition to the preceding, *Cytisus supinus* and *sessilifolius*, *Tilia parvifolia* and *Acer monspessulanus*. Our next plant is *Stachys lanata*, at the foot of a flight of steps leading towards the chateau: I observed also a plant or two of the same by the village of Pinson. We go up these steps, and leaving the chateau on the left, pass by a long straight avenue to the road to Orleans, which we cross, and gather *Cytisus supinus*, and after some distance, find on the left the wood of Chateau Gay, which we enter, and gather *Buxus sempervirens*, *Quercus coccifera* and *Taxus baccata*: even the latter of these is not thought genuine. Then on a hill almost detached from the general mass, abundance of *Phalangium ramosum* and *Carthamus mitissimus* occur. Here also, in some years, *Orchis odoratissima* abounds, but though M. Barnard was with me at this point, we hunted a long time for it in vain. The Orchises of the *militaris* tribe were over, but *O. hircina* was still in full flower, *Ophrys apifera* very plentiful, and *O. arachnites* just coming out (June 24), but when I again visited the point at a later period, (July 31), it was in great beauty: *Prunella grandiflora* also made much more show at this later visit. I do not mention in these walks *Teucrium montanum*, *Ononis Columnæ*, or *Helianthemum Fumana*, because they are almost everywhere about Malesherbes. On descending from this hill and leaving the wood, we gathered *Neslia paniculata* and *Lactuca perennis*. Here M. Barnard again left me, after having pointed out my course to the Colline de Justice. On a barren piece of ground on the way, the three species of *Adonis* were all growing together, which gave me an opportunity of comparing them. They are perfectly distinct, and well characterized by the seeds. In *A. autumnalis* (*a*) these are pyramidal, with a terminal style, and are rounded at the base. Those of *A. æstivalis* differ by having an unequally projecting membrane above the base, giving the appearance of a tooth to the outline, (*b*); while in *A. flammea*, the spike is more cylindrical, the fruit smaller and less angular, and the style be-

low the summit, (*c*): something of the border above the base is visible here also. These characters are the more valuable, as the flowers and seeds are generally found together. But in the spring (they all flower early in June, or perhaps in May), before the seeds are suffi-



ciently advanced, they may be distinguished, — *A. autumnalis* by its somewhat incurved petals of a rich deep crimson, giving rather a globular appearance to the flower; *æstivalis* by its full, flat, scarlet flower; and *flammea* by its few (3—5) and narrow petals, forming a flower neither conspicuous nor beautiful. Upon the same piece of barren ground grows *Linum montanum*, here quite prostrate; while on the neighbouring Colline de Justice it is erect. Other difference I could not find, except that the latter form produces its flowering-stems all through the summer. *L. montanum* and *L. alpinum* seem, however, hardly marked by any other character: *L. perenne* of Smith (*L. anglicum* of DeCandolle) is perhaps distinguished by its obtuse sepals. Here we also meet with *Micropus erectus*, which I afterwards found to be very common at Etampes and Pithiviers, as well as at Malesherbes; and with *Althæa hirsuta*.

From this barren piece I mounted the Colline de Justice, where again we find abundance of *Orchideæ*, *Carthamus mitissimus*, and *Spiræa hypericifolia*, together with *Rosa cinnamomea*, *Lavandula vera*, and one or two plants of *Satureja montana*. From this hill I crossed the plain to two or three cottages within sight, above Rouvilles, which mark the station of *Rosa lutea*, and where, on the 24th of June, I still found one or two straggling flowers. From thence, leaving the chateau, which lies between us and Malesherbes, on the left, we follow the line of a hedge till we have wood on the outside of the inclosure as well as within, and then crossing the hedge, which is everywhere pervious, we find *Limodorum abortivum* on the descent, on the stony soil above the sand.

In all this walk we have been rather circling Malesherbes, than going to any distance, and it might be divided into two, or the two last portions might be visited in our next walk.

In this we again cross the bridge, but afterwards turn to the left

instead of the right. On the sandy ground here, as indeed in many other places, we find *Fumaria parviflora* and *Vaillantii* abundantly. I have not, in this excursion, seen much of the larger forms, but the four smaller seem distinctly characterized. In *F. parviflora* the seed ends in a blunt acumen, giving a somewhat lengthened form to the



1, 2, 3.—*Fumaria micrantha*, Cosson. 4, 5.—*F. parviflora*, Plain of Varenne. 6.—*F. Vaillantii*, Pithiviers. 7.—*F. micrantha*, Sussex. 8.—*F. officinalis*, Beauvais. 9.—*F. officinalis*, England.

whole fruit; and though in *F. officinalis* and *Vaillantii* there is sometimes a sort of umbo, yet this rather occupies a terminal hollow than forms of itself a projection. In *F. officinalis* the calyx, on the first opening of the flower, is as long as the germen; in *Vaillantii* it is extremely small and evanescent, so much so that it is often difficult to be certain that there is any, even before the flowers are open; in *micrantha*, on the contrary, it is broad, more than half as long as the flower, and exceeding at all times the seed-vessel. The calyx of *F. parviflora* is larger than that of *Vaillantii*, but this, as I have already observed, is distinguished from all the others by the fruit.

Our next plant is *Verbascum thapsiforme*, which is also very common, but flowering rather later than many of the plants of our walk. The large flower and the lengthened lower anthers are the first things to be attended to. Cosson &c. make the character depend upon the greater proportionate length of the filaments, but I do not find this to be correct. The anther is lengthened quite as much in proportion as the filament; and it is to be observed that in *V. Thapsus* the two lower filaments and anthers are somewhat longer than the others, and in all the species of *Verbascum* where this takes place, the lengthened anther is smooth at the top, and sometimes in its whole length. Another point is in the base of the leaves, which are always so

decurrent in *V. Thapsus*, as to form five wings to the stalk. I cannot assert that this is never the case in *V. thapsiforme*, but I believe it will not be found to obtain through the whole plant, and the lower leaves are sometimes so little decurrent as hardly to furnish two continued wings, bringing it near to *phlomoides*. It may be a variety of *V. Thapsus*, but it is not a hybrid, as this and *Thapsus* are rarely found together.

We have as yet made very little progress in our walk. A few steps further bring us to a bank of loose sand, profusely covered with *Scabiosa ukratica*, which however is hardly in a state to offer good specimens before the middle of August. A little further, and higher up on the crest of the hill, where we also found most of the plants we had observed in similar situations in yesterday's walk, grows *Stipa pennata*. Abandoning the hills for a moment, we descend into the marsh, in one point of which we find *Ophrys Loeselii* in plenty, and *Myriophyllum pectinatum*, which seems a common form in this part of the country. This is also a station of *Carex filiformis*, but I did not see it. We then take the road for Nanteau, and directing our course to the east end of the village, follow the carriage-road towards Bois Minard, near the beginning of which, in the sandy bottom, we find *Trigonella monspeliaca* and *Andropogon angustifolium*. The botanist may then either continue to Bois Minard, or return through Nanteau, and take the road along the valley as far as the Mill of Noigneau. I took the former course, and from Bois Minard descended through a woody valley to the Chapelle Nainvault, now a barn, and to the said Mill of Noigneau. This valley will perhaps give nothing new, yet it is pleasant to see such a number of plants together, either rare or unknown with us. The steep barren points were splendid with : —

<i>Dianthus caryophyllus</i>	<i>Ononis Columnæ</i>	<i>Aira canescens</i>
<i>D. prolifer</i>	<i>Coronilla minima</i>	<i>Euphorbia Cyparissias</i>
<i>Silene Otites</i>	<i>Statice plantaginea</i>	<i>Ononis natrix</i> , which I
<i>Veronica spicata</i>	<i>Sedum album</i>	ought to have men-
<i>Melampyrum cristatum</i>	<i>Geranium sanguineum</i>	tioned before, as it
<i>Helianthemum guttatum</i>	<i>Stachys recta</i>	grows in many pla-
<i>Teucrium Chamædrys</i>	<i>S. annua</i>	ces.
<i>T. montanum</i>	<i>Allium sphærocephalum</i>	

The white-flowered *Helianthemums* were over. In the lower parts we had *Campanula persicifolia*, *Coronilla varia*, *Peucedanum Oreoselinum*, *Malva Alcea* and *Tilia parvifolia*. I missed *Scabiosa suaveolens*, which is said to grow in this valley.

After passing the mill and the bridge beyond it, we cross the

marshes by a path to the right, which is not always practicable. I was told that this would take me to St. Val: I do not know whether I made some mistake, and kept too much to the left, but I came out at Boigneville, the hills behind which descend in a sort of double slope, of which the highest is stony and the lower sandy. Behind the last houses of the village, on the upper part of the lower slope, *Hyssopus officinalis* grows in great profusion. At Boigneville are two respectable public-houses. I continued my walk to St. Val, behind which there is a range of rocky wood, where however I added nothing, and I should recommend it and some points above to the examination of another day, when the botanist has not spent his time and his labour in hunting out plants by the way: he will therefore set his face homewards, and passing the little bridge at Boigneville, ascend the rock of St. Gervais by a winding foot-path. This bridge is over a little stream, whose sources are in the marshy ground of the valley above, and there are moist places at the foot of the rocky bank a little above the level of the marsh, which seemed promising, but I found nothing. As he emerges from the rocky ascent of St. Gervais, he will find *Bupleurum aristatum*, which I believe is the only addition I have made to the Flora of Paris: and he will enjoy a fine view up the rocky valley of Prainvault, and down that of the Essonne. Thence keeping to the left on the edge of the hill, he will come to a carriage-road which rises from the valley. Near this he ought to find *Ruta graveolens* and *Allium carinatum*, but I failed in both, although I returned a second time to look for them. After leaving this point I took the by-road to Argerville, and turning to the right followed for some distance the valley of the Essonne to Touvault, soon after which my road ascended the hills. I left it at the top and followed the crest, which gave me again *Limodorum abortivum* and *Bupleurum aristatum*. From this point we may pass through a little hamlet, and above the chateau of Rouville, and gather *Rosa lutea* and *Limodorum abortivum*, if we have not already included them in our collections.

Many other excursions, extending to a greater distance, might doubtless be made profitably from Malesherbes, keeping among the woods and steep banks which border the valley of the Essonne; for on the flat table-land which extends on each side, there is little to be found. I went on one occasion to Boissy aux Cailles, near which, in the early spring, M. Barnard obtained *Scilla bifolia* and *Corydalis fabacea*. I found nothing; but it is curious and very delightful, after a long, dull, nearly level walk, to find one's self on the edge of a deep picturesque hollow, where rocks, woods and sandy banks are mixed

with villages and cultivation. This hollow of Boissy aux Cailles forms the head of a separate valley, watered lower down by the little river l'Ecolle, which falls into the Seine at Ponthievry. The eye follows it as far as Milly, where some pretty high hills, probably calcareous, rise above the sandy banks. To judge from this view, and from the figure it makes on the map, there is no situation about Paris which promises a better harvest than Milly, and as we find no habitats assigned, I conclude that none has been so little visited.

Whatever we may think of the Botany of Malesherbes, the tendency it exhibits to admit a foreign vegetation is very curious. Of the various plants which have been sown in different places in our country, for amusement, for experiment, or with the fallacious and foolish view of swelling out the numbers of a local Flora, we know that very few have succeeded; but here everything seems to take root.

On the 26th of June I found a voiture at Malesherbes, which took me to Lardi, whence I went by the rail-road to Etampes. Our road followed the valley of the Essonne (after the first three or four miles) as far as Ferté l'Aleps, and the whole is very tempting; but on another occasion (July) I visited Pithiviers, which perhaps is more different in its character from Malesherbes than Maisse, la Ferté, or any place in the lower valley of the Essonne. The grit and sand here disappear, and we have only a few calcareous rocks and slopes of trifling elevation arising from the valley. Pithiviers would afford two long walks, one up and one down the valley, in each case going on one side and returning on the other. Many of the rarities of Malesherbes are here plentiful; as *Linum montanum*, the erect variety, *Teucrium montanum*, *Ononis Columnæ*, *Micropus erectus* and *Althæa hirsuta*. *Prunus Mahaleb* is extremely common, as well as several of the other shrubs of doubtful spontaneity already mentioned. In the park, a vast enclosure of fields, gardens, meadows and marshes, M. Cosson and myself gathered *Lathyrus palustris*. This park is open on the side towards Pithiviers, but has no exit at the further end, and its long wall forces one to a disagreeable detour on that side of the town. Below the park is a considerable marsh, somewhat peaty in places, and here also is found *Lathyrus palustris*, but not so plentifully as in the park. In another direction *L. tuberosus* grows among the corn. Towards Bonderoy, *Medicago orbicularis* is plentiful, and we observed *Tordylium maximum* and *Veronica præcox*.

From Etampes the walk I should most recommend is to go to the extremity of the Fauxbourg St. Pierre, and turning on the left from the road to Pithiviers, ascend a sandy slope by the side of a sand-pit.

Immediately after leaving the houses we find *Tragus racemosus*, and higher up *Fedia coronata*. Crossing the ridge, and a cultivated valley, we reach a second woody bluff where *Helianthemum Fumana* (or *procumbens*) is exceedingly abundant. Proceeding in the same manner we mount a third woody point, after passing in the bottom the road to la Ferté, which is characterized by the size and abundance of *Ononis Columnæ*, and on the top by the quantity of *Micropus erectus* and of *Orchideæ*, for which however I was too late, except for *Satyrion hircinum* and an *Epipactis*.

The *Micropus* is nearly wanting on the two first hills. The upper part of the fourth point offers us *Carthamus mitissimus*, and on its foot, in a sandy wood which descends into the plain, an *Orobanche*, which some of my botanical friends thought to be *O. arenaria*. On examining it more at leisure, and comparing it with a specimen of *O. arenaria* from Montpellier, it appears to me a variety of *O. cærulea*, with blunter divisions to the lower lip, and the upper toothed, but nearly entire. I did not go any further, but there are three other points of the same nature well worth an examination, and we might then walk to Etrechy, two leagues from Etampes, and return by the rail-road. The only interesting plants I have seen at Etampes, not included in this walk, are *Teucrium montanum*, *Linum montanum* and *Trigonella monspeliaca*; and I should think it probable that a further investigation would yield these also. The two first seem to prefer a calcareous soil, and would be found in a walk begun by crossing the marshes of the Juine by a foot-path, and keeping among the woods to the right. I did not go far in this direction, and about Ormoy la Rivière, the hills do not appear interesting. Further up the valley they are again more promising. Just beyond the first hollow, opposite to a mill before reaching Ormoy, are some banks which seem exceedingly rich in *Orchideæ*; and if *Orchis variegata* had got into the Norman Flora by anything but a mistake, I should expect to find it here. There are some barren slopes stretching from Briere les Scellées towards Champigny, which will yield *Trigonella monspeliaca*, and perhaps something else; at the foot I observed *Arnoseris minima*: I passed along it in the rain. In the fields at the top I noticed the *Polycnemum*, and above St. Martin de la Roche, *Trifolium glomeratum*, which is considered a prize by the Parisian botanists. At St. Martin is *Leonurus Cardiaca*, but I did not see the *L. Marrubiastrum*, said to be found near Etampes. At St. Hilaire, *Carthamus mitissimus* is abundant; and in the fields on the plain above, *Targionia latifolia*. In a rocky sandy bit of wood in the way, the *Trigonella* also

occurs, but less abundantly than in the station before noticed : *Medicago orbicularis* also occurs in the same place. *Fedia coronata* is most abundant on a sandy point overhanging the rail-road : *Oxalis stricta* occurs in the lower grounds ; *Coronilla minima* and *Micropus erectus* are common in this direction.

On the 29th I left Etampes and returned to Paris ; and on the 2nd of July accompanied M. de Jussieu and his friends and pupils in a herborization in the forest of Montmorency.

The neighbourhood of Paris affords a number of stations for pleasant and profitable botanical excursions, in the radius of a few miles. The forests of Marly, St. Germain, Montmorency, Bondy and Senart, the woods of Meudon and Versailles, and still nearer, those of Boulogne and Vincennes, afford ample scope for botanical investigations. Sometimes a larger range is taken, and M. de Jussieu leads a party, once in the season, to Fontainebleau or Rambouillet. In the weekly excursions, the mass of pupils know little about Botany, but even in these parties there are generally some sensible men and good botanists, besides M. de Jussieu himself, and M. Decaisne. M. de Jussieu's method with his pupils is admirable. They bring him plants to name, and he adds to the name some little note about their characters, or the natural class to which they belong, or calls their attention to particular points of construction which may tend to elucidate these points.

We took the road by the *Fontaine*, and thus entered the forest, keeping afterwards rather to the left. There is a good deal of springy ground, which does not perhaps yield much water even in the spring, but which is sufficient to maintain a number of plants which delight in moisture, and *Osmunda regalis* and a variety of *Carices* are pretty widely diffused. We got *Carex Mairii* growing plentifully, mixed with *C. flava* ; *Polygala depressa* seems also to like wet places. On emerging from this part of the forest we passed the village of Andilly, from a point above which we had a noble view over the valley of the Seine and the surrounding hills. On the top of this bluff the stones abound in the fossil seeds of *Chara medicaginula*. On ascending this point we turn to the left, between a corn-field and a branch of the forest : the former contains *Arenaria segetalis*. Beyond this we again find a considerable extent of wet ground, from which we descended to a dried-up pool, at the foot of which is the habitat of *Stachys alpina*. In this pool, or in one in the same neighbourhood, I recollect on a former occasion to have found *Teucrium Scorodonia*. We then turned up the little valley which forms a station for *Asperula odo-*

rata, and one or two other plants more common with us than about Paris, and arrived at a house famous for its milk, and *fromage à la crème*, which is more like clotted cream than like cream cheese, and after passing the foot of another pool, take a path to the right, at a little distance above which, on the left, is some boggy ground, the station of a curious monstrosity of *Erica Tetralix*. The flower is small, and much less conspicuous than ordinary, and the style very prominent; but the wonderful part is the apparent conversion of the eight anthers into as many cells of a seed-vessel.

It may be supposed I did not neglect the Bois de Boulogne, but I hardly know what line to recommend to an English botanist. The wood is nearly flat, on a sandy soil, and for a Parisian botanist contains few rarities but such as are suspicious. An English one, however, may be gratified, especially if he visits it in May, with finding *Convallaria Polygonatum* and *multiflora*, *Pulmonaria angustifolia*, *Melampyrum cristatum* and *Herniaria glabra*; or later in the season, *Coronilla varia* and *Veronica spicata*. Perhaps the best line would be to enter by the gate at Passy, near to which, on the rubbish and broken ground occasioned by the new fortifications, M. Bourgeau has lately found abundance of *Centaurea melitensis*. After passing the fortifications, we may keep northward to a great carrefour, that is, in this instance, to a large open circle where a great many roads unite. A little to the north we find *Thalictrum sylvaticum*, also a discovery of M. Bourgeau's, and if not a species, it is a variety well worth notice. It is smaller than *T. minus*, and differs from that in the manner in which it spreads itself over the ground, forming an almost continued and even covering. We then turn to the west, to the gate of Longchamps, near which are *Medicago orbicularis*, *Orobanche amethystea*, &c., and passing the gate we descend to a gravel-pit, about which are *Heliotropium europæum*, and several other plants not uncommon in such situations about Paris. We re-enter the wood, and take the avenue of Grand Villiers, leading to the gate of Boulogne; then take the first turning to the left, and near the turning, and for some distance along the last-mentioned road, we find *Potentilla pensylvanica*, *P. recta*, *Myagrum orientale* and *Brassica Cheiranthus*: there is also a large variety of *Thalictrum minus*. We go out of the gate of Boulogne, and make our way at a little distance from the wood to the *Point du jour*. I did not at the time visit this locality, but have a recollection of being much interested there some years ago.

On the 10th of July I took the rail-road to Versailles, and walked to the *Etang du trou Salé*. My chief objects were *Potentilla supina*,

Elatine alsinastrium, *E. hexandra* and *Scirpus supinus*, but I succeeded only with the first. The Etang du trou Salé is a pool made by damming up a trifling valley, and the permanent supply of water is very small, if any, yet a number of persons engaged in angling may serve as a proof that it is never quite dry. The sides are very nearly level, so that a fall of a few inches exposes a great extent of land overflowed in the winter. In this part grows the *Potentilla*, this year in great abundance, but in some years it is said to be very sparingly scattered. Here also is *Gypsophila muralis*, and an *Alopecurus* that is called *fulvus*, but which I think does not differ from *A. bulbosus*. Some of the plants have a decided swelling at the base of the stalk, others are as decidedly without it, and between these there is every possible step. A little higher up we find *Lythrum hyssopifolium*, and on the edge of the water, *Littorella lacustris*, *Limosella aquatica* and *Scirpus acicularis*. For *Scirpus supinus* I am probably too early, as I believe it hardly flowers before September.

On the 14th I again accompanied M. de Jussieu and his pupils: M. Delile and his son, and M. Maire, were also of the party. We went on the rail-road to Athys, where we crossed the water, traversed a cultivated plain, and afterwards followed a little stream to its source in the forest of Senart. There is a good deal of boggy ground in this forest, where the face of the country seems to give little expectation of such a feature. Our plants were *Exacum Candollii* and *filiforme*, *Juncus tenageya*, *Centunculus minimus* and *Potamogeton heterophyllus*, all near the Carrefour des Cerfs. *Epipactis palustris* and *Chlora perfoliata*, abundant on the boggy ground. *Utricularia minor*, *Inula salicina*, *Campanula cervicaria*, *Malva Alcea*, *Peucedanum parisiense*, *Selinum caruifolium*, *Stachys germanica*, *Polycnemum arvense*, *Stellera passerina*, and *Carex intermedia*, the latter growing in the water, and putting on an appearance different from that which it has with us.

We concluded our walk at Ris, where we again got on to a rail-road train, and reached Paris about 6 o'clock.

On looking back at the course I have held, I must acknowledge that my turning south at Mantes before reaching Paris was not well planned in point of Botany, though a view of the cathedral at Chartres might be well worth such a deviation. A better way would be to stop at Vernon. There is a little valley above Vernon where perhaps something might be found, but the acknowledged spot of good Botany is on the hill of St. Catherine, on the opposite side of the Seine. From Vernon, descend in the steam-packet to the lesser Andelys, where the Rochers de St. Jacques on one side of the town, and Cha-

teau Gaillard on the other, give probably the richest harvest on the river from Paris to the sea. A person who is not nice in his demands for accommodation, may be well entertained at the Chaîne d'Or, at the little Andelys. The larger would probably afford a larger inn. From Andelys the botanist may again descend the Seine to the station which communicates with Louviers. He would then have to pass twice on the rail-road the distance from that station to Vernon, but this would cost less time than to ascend the stream between the two places. If after this he is inclined to stop at Mantes, he will find the best Botany on the hills on the north side of the river.

JOSEPH WOODS.

November, 1843.

ART. CXCVI.—*Varieties.*

433. *Observations on Hieracium nigrescens and H. hypochæroides.* In the last number (Phytol. 801), Mr. H. Watson has called attention to the plant which has been lately considered by English botanists as the *Hieracium nigrescens* (*Willd.*), and for my knowledge of which as a native of Scotland I am indebted to his kindness. A specimen now before me (gathered by Mr. Watson on Ben Alder) agrees exactly with Bohemian specimens of *H. nigrescens* received from Mr. Tausch under that name; and as specimens from that botanist are expressly referred to as representing the plant of Willdenow's herbarium by Mr. Frœlich (*DeCand. Prod.* vii. 209), the latest general writer on the subject, I feel myself at liberty to consider that the Bohemian specimens are authentic representations of the plant of Willdenow. In addition to this the Scottish plant agrees well with the descriptions of *H. nigrescens* given by different authors, some of whom consider it as a distinct species, and others refer it, as an extreme form, to *H. alpinum*. Having now shown, I trust, sufficient reason for its name, I proceed to make a few observations upon its claims to specific distinction. This is a subject upon which much difference of opinion exists, since some forms of *H. alpinum* (*H. Halleri*) approach very closely to it; and it is only by long-continued cultivation, from seed, of this and *H. Halleri*, that we can expect to arrive at a determinate opinion upon the subject. I am unable to add anything to the character pointed out by Mr. Watson, as distinguishing this plant from all the forms of *H. alpinum*, namely, the much broader and more strongly toothed leaves and the dark or nearly black involucre. The difference of the colour

of the involucre seems to depend upon the comparative shortness of the hairs with which it is clothed; they are terminated by a pale portion as in *H. alpinum*, but that part is very short, thus allowing their lower part, which is black, to be much more distinctly seen. These peculiar hairs will enable the plant to be distinguished from all forms of *H. murorum*; and in those specimens which produce more than one flower, the very acute angle between the peduncles is a certain character. I do not venture to give any strong opinion upon the specific claims of this plant, but am strongly inclined to think it distinct from *H. alpinum*. I hope now to be allowed to say a few words on the second plant referred to by Mr. Watson. During a visit to the West Riding of Yorkshire in July last, I was shown by Mr. John Tatham, jun., the plant that has for many years been called *Hypochæris maculata* by the botanists of that neighbourhood, growing upon rocks near Settle, and had no hesitation in calling it a form of *Hieracium murorum*. I have now re-examined specimens from that place, and am fully confirmed in my opinion. I consider Mr. S. Gibson's *H. hypochæroides* to be the same plant. This is far from being an uncommon plant, and is very often taken for the *H. maculatum* (*Sm.*) or *H. pulmonarium* (*Sm.*), to which it is very closely allied, or the *H. pictum* of authors. *H. maculatum* is, according to my view, a much larger plant, with several stem-leaves, having a decurrent base to all the leaves, thus referring it to *H. sylvaticum*. The plant called *H. pictum* from the falls of the Ogwen is the *H. rigidum*, *γ. pictum* of my Manual (p. 186), and quite distinct from all the forms of *H. murorum* or *H. sylvaticum*; I possess it from Wastwater, Cumberland; Falls of the Ogwen, and near Llanberis, Caernarvonshire; and from near Thorngraston, Northumberland. — *C. C. Babington; St. John's College, Cambridge, December, 1843.*

434. *Note on the Weymouth Stations of Lathyrus Nissolia and Salicornia radicans.* In reference to Mr. Gibson's remarks on the plants of Weymouth (Phytol. 735), and the Rev. A. Bloxam's note (Id. 775) on the same subject, it may be worth mentioning that I was at Weymouth in 1837, immediately after Mr. Bloxam's visit, when I found *Lathyrus Nissolia* growing abundantly to the west of Portland Ferry, and *Salicornia radicans*, also abundantly, on the ground newly reclaimed from the Backwater.—*T. Bell Salter; Ryde, December, 1843.*

435. *Note on the Hieraciums.* You will perhaps allow me to thank Mr. Watson for his information on the subject of the *Hieracium* (Phytol. 801), Mr. Watson's remarks are very clear and satisfactory, and there is little doubt of the plant sent by Mr. Tatham "to the Botani-

cal Society of London," being the same as the one I alluded to (Phytol. 741), and there is no doubt of Mr. Tatham's having been led into the error by some of the botanical works alluded to by Mr. Watson; but after this I would say that the plant sent by Mr. Tatham to that Society, was neither the *H. pulmonarium* nor the *H. maculatum* of Smith; the latter plant does certainly grow about Malham-cove, and in cultivation remains perfectly unchanged; this is the *H. maculatum* of our gardens, and if it be not a distinct species, it will be a variety of *H. sylvaticum*, *Smith*. It differs from the one which has been mistaken for *Hypochæris maculata*, in having its stem leafy, and in having more numerous flowers. In all the specimens which I have seen of the other plants, the stems are *without leaves*, and as I have said (Phytol. 741), the plant is not described by any writer on British plants.—*Samuel Gibson; Hebden Bridge, December 9, 1843.*

436. *Note on Carex pseudo-paradoxa.* I am sorry to be so much at variance with Dr. Wood, in respect to several of his remarks on my *Carex pseudo-paradoxa*, I do not understand what is meant by his saying, "and considering myself in some degree obliged to maintain the correctness of the Flora of this neighbourhood," unless he would say that I have stated something relating to the Manchester Flora which is not correct; and this I have not done, neither do I wish to do it. It appears that the Dr. and myself differ in our opinions as to how far *Carex teretiuscula* and my *C. pseudo-paradoxa* may or may not be considered distinct as species. Here I might ask what number of parts, and which of them, shall be looked upon as characteristic? But as that question has so often been asked, and no one can answer it, I will leave it as it is, and turn to the Dr., who has not noticed many particular parts of my *C. pseudo-paradoxa*, and those he has noticed will go to prove that it is a very different plant from *C. teretiuscula*. I did not notice the roots of my plant in the description which I gave of it (Phytol. 778), although I had been previously informed of its singular mode of growth; this I declined, as I did not wish to describe anything which I had not seen myself. The roots are the first which the Dr. takes notice of; he tells us that *C. teretiuscula* has a distinct mode of growth, and on the contrary that *C. paniculata* has roots which form dense and elevated *cæspites*: he then says, "so far as my observations extend, this difference in the roots is permanent." After this he tells us that my *C. pseudo-paradoxa*, in the place where it is found, "has not the opportunity of displaying its characteristic property of isolation, and is compelled to increase by a regular approximation and aggregation of its roots." He also

says that "as we approach the water, however, it begins to separate itself into masses of various sizes, and in this manner assumes a pseudo-cæspitose appearance." This is, I think, carrying the thing too far; first to tell us that the character of a plant is *permanent*, and then in the very next sentence to tell us how this *permanent* character can be changed. Here I must beg of the Dr. to stand on even ground, as I shall allow him nothing for supposition, unless he would allow me to suppose that the roots of my *C. pseudo-paradoxa* might be the roots of *C. paniculata*, in a modified form. This calls to memory the story of the *oat* being so much modified as to become *rye*. The next thing the Dr. takes notice of, is "its elongate and slender stems, and its more racemose mode of inflorescence:" this, he says, led him and the friend who was with him to suspect it might possibly be something *new* to them. There is nothing here but what will go to prove my plant to be very different from *C. teretiuscula*. The Dr. says that the plant has a more *racemose* mode of inflorescence; our editor tells us it has a *spike* — panicle he cannot call it. Now I will see what characters it must have to be a spike, &c. If it be a spike, the sessile or nearly sessile flowers are borne immediately upon an axis. Is our plant so? — *No*. If it be a *panicle*, the flowers are borne upon peduncles, which are variously branched, and seated upon an axis. Is our plant so? — *No*. If it be a *raceme*, the flowers are borne upon pedicels, which are generally single-flowered, and these again upon an axis. Is our plant so? — *No*. If it be a *thyrses*, the flowers are in a panicle which is very closely compacted, so as to form an oval head. Is our plant so? — *Yes*. The specimens now before me have their inflorescence composed of about six spikelets, two or three of the lower [ones] are again divided into about five or six spicula. This I called a *panicked spike* (Phytol. 778), and this perhaps would be a better term, as *thyrses* is not in common use. The next part of the plant which is taken notice of by the Dr. is the *fruit*. Here I have to enquire what the Dr. means us to understand by the *fruit*? For Sir W. Hooker, in describing the fruit of our *Carices*, takes notice of nothing more than the *perigynium*. Sir J. E. Smith makes a distinction between the fruit and the seed; when he speaks of the *perigynium* he calls it the fruit, when he speaks of the nut, he calls it the seed. When Mr. Babington speaks of the fruit of a *Carex*, he means to be understood as speaking of the *perigynium* and nut together; and when he speaks of them separately, he expresses it as such. When I speak of the fruit of a *Carex*, I speak of the *nut only*, as I do not consider the *perigynium* any part of the fruit. If the Dr. is to be

understood as meaning the perigynium only, he is correct, but if when he speaks of the fruit, we are to understand the nut and perigynium separately, he is not correct when he says it "hardly, if at all, differs from that of *Carex teretiuscula*," as the nuts in these two *Carices* are very different, and will be found as I have described them (Phytol. 778), although the perigynia of the two are much alike, and this I have made no attempt to deny. Here again I find the Dr. obliged to admit that my plant puts on a different *aspect* and *habit*, he says it does this under the adventitious circumstances in which it grows. A little lower I find him talking of a *modified form*: modifications and changes will not do. I must again caution the Dr. to keep in a direct road, for if he goes to one side I shall go to the other. But this I will leave, and the next thing I shall notice is a modification of the following words: "as a form of *C. teretiuscula* with fruit as in *paniculata*," (Phytol. 778). These words I find so much modified as to stand as follows:—"a form of *C. teretiuscula* with the fruit of *C. paniculata*." There are two or three other things I might have noticed, but as I am now taking up too much of your space, I must beg of you to allow me to notice another (and perhaps the most important) point, and that is the *secrecy*. The Dr. says that "no such thing as secrecy has been shown at all," and that I was *never* refused to have the place made known to me. Here I cannot well make use of names, as the parties might not allow it; but I will tell the Dr., that the individual he alludes to, after telling me he was not at liberty to go, did refuse to make the place known to me. The refusal was made on the ground of its being nine miles from Manchester (I had been previously told it was three miles), and that if I were to go, I could not find the place. The Dr. further says that I did not apply *to any one else*; this I will say is not the case, as I made application, both by letter and otherwise. I was about two hours with a person who knows where the plant grows, and I tried every artifice I could to induce him either to go with me to the place, or otherwise to procure me specimens; but this was all to no purpose, and when I found that I could not procure them in a straightforward way, I resolved to go a little about for them. And I will now tell the Dr. that the person whom he employs at times to collect plants for him, did receive 5s. for going to fetch the specimens which I have now before me. I should have had to offer a few remarks on our Editor's note, but will prefer waiting the result of his renewed examination, and for the present leave the subject.—*Id.*

437. *Note on an apparently new British Carex.* I have much pleasure in announcing, through the medium of 'The Phytologist,'

the discovery (by Saml. Hailstone, Esq., F.L.S., of Horton Hall, near Bradford) of a *Carex* which appears to me not to be described by any writer on British plants. For this *Carex* I will propose the following name, and give a short description of it: but if it prove to be already described by continental botanists, under any other name, the one I have adopted will, of course, be given up. *CAREX Hailstoni* (Mihi). Stem about 18 inches high, three-angled, angles rough in the upper part, smooth below. Leaves flat, sheathing the base of the stem, tapering at the point and rough on the edges. Spike $2\frac{1}{2}$ inches long, composed of about five alternate elongated spikelets, the lowermost of which is subtended by a bractea, which is somewhat longer than the spike: spikelets about an inch long, composed of about nine or ten spicula, these again are composed of about nine or ten *staminiferous* flowers: glumes ovate-acuminate, brown, with membranous edges. The roots and fertile flowers are unknown to me; perhaps the plant will be found to be a *diœcious* one, as I have not been able to find a single fertile flower in any of the specimens. Locality, "In a bog in the meadow on the left hand of Ore lane, proceeding from Hastings. In the spring of the year 1834." This plant is perhaps still to be found in the same locality, and would be well worth the trouble of being looked for by any botanist who may at any time be in search of plants in the neighbourhood of Hastings. This *Carex* is a very conspicuous one, and would soon be seen by any person who is acquainted with the genus. It is now nine years since Mr. Hailstone discovered the plant; and he says in his letter to me, that he had kept it in his herbarium separate and apart, as not being described by any author that he was aware of, as an English plant.—*Id.**

438. *Erratum*. Perhaps you will allow me to correct a little error which appears in your last (Phytol. 815); in the last line of that page read *neuter* spikelets instead of *outer* spikelets.—*Id.*

439. *Habitat for Cynodon Dactylon*. For the use of the youthful botanist resident in or near the great metropolis, to whom information of the whereabouts of any of the rarer species is a desideratum, I would mention that of *Cynodon Dactylon*, which I have seen in some abundance in the month of August, on Kew Green, Surrey. This, if I

* To the above communications Mr. Gibson appends the following—"P.S. Do not omit any part of the above note." We have however taken the liberty to omit an entire paragraph, in which no allusion is made to the *Carices* in question: the remainder of Mr. Gibson's letter is printed verbatim.—*Ed.*

mistake not, is an unpublished station for this beautiful little grass.—*Walter Hill; Kew, December 14, 1843.*

440. *Note on the genus Sphagnum.* The genus *Sphagnum*, which occupies such an important position in the economy of Nature, does not latterly appear to have received, in this country, the same degree of attention which is bestowed on many other genera of mosses. Perhaps Sir W. J. Hooker's remark in the 'English Flora,' has dissuaded many persons from attempting to discriminate the species; "as it is certain," he says, "that the limits of the species, if such they may be called, cannot be defined." The four species given in that work are sufficiently well marked in character, and if no other forms were to be met with, would be easily distinguished; but the fact is, we have other forms, apparently quite as distinct, and fully as worthy of a name. If I am correct in this statement—and I think no one will deny it—we must come to the conclusion either, like Linnæus, to reduce all to but one species, or to add a few to the existing number. At the present time, when there is so general a disposition to multiply species, the former alternative is not very practicable, however reasonable it might be considered by some; even if it were attempted, it could not stand the test of *facts*, seeing that several of the admitted species may often be found growing intermixed, one with another, without losing their identity. Nevertheless, to add a few species to the present number, is by no means an easy task; for before that can be effected, the genus, in all its forms, must be carefully studied, in order to determine whether *any* characters may be relied on as permanent, and if so, in what they consist. By way of illustrating my views, I enclose for your inspection two specimens; one, which I believe to *Sphagnum obtusifolium*, var. *γ. fluitans*, I found floating in water in Bulwell bog, Notts. The fruit is situated about the middle of the stem, which circumstance, if the plant is to be considered a variety of *S. obtusifolium*, will entirely neutralize any characters that might be drawn from lateral and terminal fruit. The other specimen I cannot refer to any species whatever. I found it abundantly in fruit on Oxton bog, Notts., together with *S. cuspidatum* and *S. compactum* (*Bridel*), the latter as mentioned by Dr. Howitt, in his *Flora of the county*. Hoping that these remarks may gain for the subject the attention of persons who will be able to give more definite information, I conclude with enquiring whether any of your correspondents can tell me what is meant by *Sphagnum palustre*, so often referred to in geological books and lectures? —*Joseph Sidebotham; Manchester, December 21, 1843.*

441. *Note on Veronica Buxbaumii.* I have noticed *Veronica Buxbaumii* for several years past, growing in great profusion in a hop-plantation in this neighbourhood: although it is frequently disturbed by the tillage of the soil, it appears to be as firmly established as ever, and has now as much the appearance of being a true native as its two allies, *V. polita* and *agrestis*. — *Thomas Bentall; Halstead, Essex, January 4, 1844.*

442. *Note on the late flowering of the Fuchsia.* The extraordinary mildness of the closing months of last year has been universally remarked; and the daily and weekly papers, in noticing this peculiarity of the season, have more than once called the attention of their readers to such wonders as “roses blossoming,” “young potatoes of the size of marbles,” &c.; in addition, I may mention the following instance of a *Fuchsia* having renewed its youth, and strangely budded and blossomed about a week ago. The plant is kept in a flower-pot. During last summer it blossomed in its season, like other plants. In autumn its foliage withered and fell, and the plant reminded us of the approach of winter. But winter never came; and the *Fuchsia*, as if hopeless of his approach, began to bud and finally to blossom. At present it is clothed with leaves, — but leaves, not one of which is a third the size of its summer leaves. Its flowers, too, are curious. The corolla — small in any case, in this unnaturally so — retains its deep purple hue; but the beautifully developed calyx, instead of being bright scarlet, as it ought, is of a pale pink colour — almost white. — *Robert Dick Duncan; Vale of Almond, Mid Calder, Edinburghshire, January 6, 1844.*

443. *Note on Polypodium fragrans.* In reference to the question respecting *Polypodium fragrans* (Phytol. 839), perhaps I may venture to ask Mr. Newman whether, in “collecting evidence,” he has been reminded of an observation made by Rousseau, in his ‘*Lettres sur la Botanique.*’ I have not this work to refer to, but an extract taken from it a few years ago, is as follows. “Je crois me rappeler, par exemple, qu’il s’y trouve quelques fougères, entre autres le *Polypodium fragrans*, que j’ai herborisées en Angleterre, et qui ne sont pas communes partout.” There is no reference to the number of the letter, but I believe it to be one towards the end of the volume. Rousseau’s residence, while in this country, was at Wootton-hall, Staffordshire, a neighbourhood in which it is highly probable *Lastræa Oreopteris* would be found: and it was with a view of ascertaining this that the extract was made: and my attention was attracted to the subject, by a note in the 7th edition of Withering’s *Botany*, in which the editor,

after describing *L. Oreopteris*, says, "the fragrant scent of this species is supposed to have induced Hudson to imagine it the *P. fragrans* of Linnæus."—*M. Beever*; *Coniston, January 4, 1844.*

444. *Note on Polypodium fragrans.* In 'The Phytologist' for the present month (Phytol. 839), Mr. Newman puts the following question, — "What is the *Polypodium fragrans* of Linneus?" stating, at the same time, that Wahlenberg, Roth, DeCandolle, Sadler, Smith, Hooker, Dietrich and Babington appear to take no notice of it. Reference to Hooker and Greville's 'Icones Filicum' will prove that Mr. Newman is in error in supposing Sir Wm. Hooker to have omitted mention of this fern, as in vol. i. tab. 70, it is represented under the name of *Nephrodium fragrans* (*Polypodium fragrans*, *Linn.*, being given as a synonyme), from specimens collected by Capt. Parry in the Island of Igloolik, during one of his expeditions to the Arctic regions. I have in my herbarium a specimen presented by Miss A. E. Griffiths, gathered by her brother, William Griffiths, Esq. (who accompanied Capt. Parry) in Melville Island, which, though not so large, would yet be immediately detected as the same species. It appears also that Sir W. Hooker has described *P. fragrans*, *L.* in the Appendix to Parry's Second Voyage, and that Swartz, Willdenow, Sprengel and Richardson have noticed it. The object of Mr. Newman in putting this question, appears to be a wish to identify the *Polypodium fragrans*, *Lin.*, with either the *Aspidium Oreopteris*, *Sw.*, or the *Aspidium rigidum*, *Schkuhr*, and thus to apply the Linnæan name to one of our indigenous species. It is true that Hudson adopts this name, but not having a copy of his work, I cannot quote his characters, and hazard an opinion of my own as to their application. This however is of little consequence, as Sir J. E. Smith, in his 'English Flora,' gives Hudson's *P. fragrans*, with a note of interrogation, as a synonyme of *Asp. Oreopteris*, *Sw.*, and says that this latter plant "exhales, more or less constantly, a fragrant scent, whence perhaps Mr. Hudson might take it for *Polypodium fragrans* of Linnæus, which is a very distinct North-American species." If we refer to the description of *P. fragrans*, *L.*, as given in the 'Systema Naturæ,' we shall find it to be as follows. "*P. frondibus subbipinnatis lanceolatis: foliolis confertis: lobis obtusis serratis, stipite paleaceo.*" *Aspidium Oreopteris*, *Sw.*, will most certainly not answer to these characters, it being, according to Mr. Newman in his beautiful work on British Ferns, "pinnate, the pinnæ *rather distant* and pinnatifid, the pinnules rounded and slightly crenate;" so slightly crenate indeed, that the figures represent the pinnulæ as scarcely undulate. The question then becomes

narrowed to the *Nephrodium fragrans* of Hooker and Greville's 'Icones' and the *Lastræa rigida* of English botanists. Now to the first of these the Linnæan description alone strictly applies, both as to the form of the frond, "*lanceolate*," and the heaping together, "*confertæ*," of the pinnæ. Swartz describes the frond of *L. rigida* as ovato-lanceolate, which quite agrees with my specimens of the plant from Yorkshire and Lancashire: the pinnæ also are not closer than in the great mass of bipinnate *Lastrææ*. I would here remark that in the section of *Polypodium* in which *P. fragrans* is described in the 'Systema Naturæ,' the term "*confertæ*" is not employed, except with reference to the pinnæ of *P. fragrans*. These comparisons are, in my opinion, sufficient to prove that Linnæus applied the specific name of "*fragrans*" to the fern which is figured in the 'Icones Filicum' as *Nephrodium fragrans*. It is indeed true that difference of soil and temperature might produce such a change, as to cause both an approximation of all the pinnæ, and a shortening of the lower ones, so as to make the fronds of *Aspidium rigidum*, *Sw.*, correspond to two of the Linnæan characters, (as I have observed in *Asplenium lanceolatum*, *Sw.*); but I think we have no right to assume that the great founder of Systematic Botany took his description from an aberrant form, when we have a species whose normal characteristics so well agree with those given in the 'Systema Naturæ.' That *Lastræa rigida* and *Lastræa fragrans* are distinct types of the same species, no one who has compared the plants, side by side, will, I am confident, be inclined to admit: — the elongated acute triangular pinnæ of the former can never be converted into the oblong obtuse ones of the latter. An examination of the specimens of *Polypodium fragrans*, in the Linnæan herbarium would perhaps settle the question; and I would therefore advise Mr. Newman to avail himself of his means of access to the said collection, in order to obtain as much information as possible upon the subject. If these specimens agree with the Linnæan description, all doubt will be removed: if not, we must conclude that through mistake they have found their way into the collection, and we must consequently revert to the published characters. I am inclined to agree in the spirit of Reichenbach's observation, though not to participate in the sneer on the value of the Linnæan herbarium, when he says, "*Opera viri magni mundo communia sunt, herbarium fallax unico possessore gaudet.*"—*W. S. Hore, M.A.; Stoke, Devonport, Jan. 9, 1844.*

445. *Note on the Polypodium fragrans of Hudson.* The *Polypodium fragrans* of Hudson (quære Linn.) seems to be considered as a mere *nominis umbra* by all modern writers on ferns; and yet there is

satisfactory evidence that such a plant did formerly exist. Sprengel, in his work on the Cryptogamia (Kœnig's translation) thus characterizes the species. *Aspidium fragrans*. With bipinnate frond, the primary leaflets ovate-lanceolate, the secondary very narrow, sharp-toothed, and their lower surface thickly clothed with scales, and with the involucre of the spots of the capsules. The stem about one foot long is closely beset with broad chaffy scales. Now Sprengel was acquainted with this species from *specimens*, which he states he received from Aiton, who observed it was a native of England. A plant answering to the description did then *exist* at the time, and most probably in the Kew garden, although it is not introduced into the 'Hortus Kewensis.' Sprengel could not have confounded this fern with *Aspidium* (*Lastræa*) *rigidum*, which he describes in the work from which this description is taken, and much less with *Aspidium Oreopteris*, for he expressly censures Bolton for considering Hudson's *P. fragrans* as identical with his (Bolton's) *Polypodium Thelypteris* (*Asp. Oreopteris*). The last species smells exactly like orange-peel, whilst Sprengel's *Asp. fragrans* is stated to smell like raspberries, and to be a Siberian as well as British species. — *Henry Oxley Stephens*; 78, *Old Market Street, Bristol, January 12, 1844.*

446. *Note on Cystopteris montana*. *Cystopteris montana*, recently described in 'The Phytologist' as a newly-discovered British plant, (*Phytol.* 671), is stated by Sprengel to have been found in Wales by Plukenet, who figured it in his 'Phytographia,' tab. 89, fig. 4, but I have not seen the figure.—*Id.*

ART. CXCVII. — *Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

November 17, 1843.—J. E. Gray, Esq., F.R.S., President, in the Chair.

Dr. Bromfield presented a specimen of a species of *Calamintha*, new to the British Flora, discovered by him in the Isle of Wight, (*Phytol.* 768).

Read "Notes of a Botanical Excursion in Warwickshire, Worcestershire, Wales, and Ireland," by Mr. S. P. Woodward. The first week, spent by Mr. Woodward in Worcestershire, afforded him very little scope for botanizing, the interest of the country being chiefly geological. The only ferns met with near Birmingham, were *Athyrium Filix-femina* and *Lastræa dilatata*, on the borders of Edgbaston pond; and in the vicinity of Kidderminster Mr. W. could not find even these. On the Clint hills *Malva moschata* and *Campanula patula* were the only conspicuous flowers in the hedgerows. These hills are of trap rock, but as they present no escarpments, and have no rills or ponds, they are entirely destitute of ferns. The limestone hills of Dudley-castle and the Wren's nest, appear to be in the same predicament, not even the *Polypody* grows there, and on the old castle one solitary bit of *Ruta-muraria* was all Mr. W. could discover: *Cnicus eriophorus* is very abundant about the castle. *Lastræa dila-*

tata grows amongst the furze on the Rubury hill, which is a ridge of altered Caradoc sandstone flanking the Bromsgrove Lickey. The Abberley hills present more variety of soil and aspect, and consequently afford better botanizing ground. At a spring-head near Abberley church, *Oreopteris* and *Filix-femina* are in tolerable abundance; the brake is plentiful on the hills, and in a hedge near the Hundred-house, *Polypodium vulgare* and *Polystichum angulare* occur sparingly. *Lastræa spinulosa* grows near Great Witley, and *Equisetum Telmateia* is plentiful in a quarry within sight of the Hundred-house, conspicuous on account of its vertical beds of limestone.

Near Malvern, *Lastræa dilatata* and *Equisetum sylvaticum* abound in the woods, and *Polystichum angulare* on the banks of small ravines in the Wenlock shale. *Pteris* and *Lomaria* are also on the high ground, and *Ceterach* on the church. The Malvern hills are a range of trap rock, from 6 to 14,000 feet in height, and on their eastern flank which is least exposed to wind and sun and covered in many places with a talus of fallen fragments of rock, there is excellent accommodation for ferns. *Polypodium vulgare*, *Lastræa dilatata* and *Filix-mas*, *Athyrium Filix-femina*, *Asplenium Trichomanes* and *Adiantum-nigrum* are abundant, some of them very nearly to the summit of the hills. The principal flowers in the thickets were *Campanula Trachelium*, *Vicia sylvatica*, *Chlora perfoliata*, and the betony and foxglove; and upon the stone walls, *Cotyledon* and *Cardamine Impatiens*. Mr. W. gathered *Asplenium Trichomanes* again on the walls of the Cathedral-precinct at Gloucester, and on the walls and bridge near Crickhowell and Brecon, *Ruta-muraria* and *Ceterach* are abundant. Mr. W. believed these walls to be built with the limestone occurring in the middle of the old red sandstone series. *Filix-femina* is plentiful on the banks of the Wye and Towey. At Caermarthen Mr. W. saw *Adiantum-nigrum* and *Trichomanes* on many of the stone walls, and on the walls of Lord Dynevor's park near Llandeilo, the *Polypody* grew so luxuriantly as to make him very desirous of ascertaining whether it could be the *Cambricum*, which he had never seen or heard of growing except in gardens.

Passing over from Pembroke to Waterford, Dungarvan and Youghal, the aspect of the country is entirely changed. Instead of the rivers winding through rich corn-valleys and deep woods, one dreary expanse of grey rocks and purple heather is all that meets the eye often for many miles. Occasionally the country is intersected by deep glens, but they are seldom wooded; and both in the low boggy ground and on the hills, cultivation seems scarcely to produce any effect in softening the air of desolation spread all around. In the stone walls bordering the roads and separating the fields, *Filix-mas* and *Filix-femina* are everywhere seen; *Scolopendrium*, *Pteris*, *Lomaria*, and *Lastræa dilatata* are also very general. In the dry stony fields the brilliant spikes of *Lythrum Salicaria* seemed to have taken the place of the foxglove and nettle-bell of our English hedge-rows, and by its abundance and beauty attracted the attention and admiration of Mr. Woodward's fellow-travellers. At Glenbower near Youghal *Hymenophyllum Tonbridgensis* grows most luxuriantly, and *Trichomanes speciosum* is also said to have been found. During his stay in Cork, Dr. Thos. Power took Mr. W. to see the habitat of the *Trichomanes* in the Temple-Michael glen, at the top of Glen-mire. There is very little of the plant, and it is not known to fructify. In this glen there is sometimes a low scanty growth of the "Irish oak," not nearly so conspicuous however as *Euphorbia Hibernica*, *Bartsia viscosa* and *Gnaphalium rectum*, and *Carex pulicaris* grows in the glen and its vicinity; and here Mr. W. first met with *Lastræa dumetorum* growing along with *L. dilatata*, and presenting its usually very distinct appearance. *Hymenophyllum* grows scantily in this glen, and from exposure

is all dried up by the beginning of autumn. The other ferns noticed near Cork were *Scolopendrium*, *Asplenium Ruta-muraria*, *Trichomanes* and *Adiantum-nigrum*, *Lastrea Filix-mas*, *Athyrium Filix-femina*, *Polypodium vulgare*, *Lomaria spicant* and *Polystichum aculeatum*.

From Cork Mr. W. took the mail to Bantry, passing through Bandon, about four miles from which *Trichomanes speciosum* grows more strongly than near Cork, but still is always barren. About Bandon and Innishannon the Polypody grows abundantly on walls, attaining a very large size, and much of it, Mr. W. believed, would turn out to be proliferous. About the rocky roads and salmon-streams of this neighbourhood, the common *Filix-mas* and *Filix-femina* grew more luxuriantly than Mr. W. had ever seen elsewhere.

Further on, at Clonakilty, *Erica vagans* and *Mackaia* are said to grow. Between Skibbereen and Bantry, and indeed in all the mountainous parts of Cork and Kerry, *Lomaria spicant* is the most abundant of ferns.

At Bantry Mr. W. took Mr. Newman's Irish Notes in his hand, and strolled out to see Lord Bearhaven's seat and park. The Irish variety of the Polypody was found growing as described, on the park-wall; and on ascending the hill from which Mr. N. watched the sunset over the bay, with its bright islands and mountain coast, he startled a flock of curlews from their daily resting-place, which is usually occupied at night by the rooks and jackdaws. In a belt of plantation below this hill there is abundance of *Polystichum angulare*, *Lastrea Filix-mas* and *dilatata*, *Athyrium Filix-femina* and *Lomaria spicant*; and the hill itself is half covered with *Pteris*, which does not usually abound, or attain its customary luxuriance in the south of Ireland. Following the example of Mr. Newman, Mr. W. took a boat and crossed the bay to Glengariff; and the next day walked on to Kenmare, missing Hungry-hill and the *Menziesia polifolia*, as he was anxious to spend a day with Dr. Taylor at Dunkerran castle. In Glengariff he found both species of *Hymenophyllum*, a profusion of *Osmunda*, *Lastrea dilatata* and *dumetorum*, *Lomaria*, *Filix-femina*, *Pteris* and Polypody, but no *Trichomanes*, although several botanists have tried to introduce it there. There are fine woods of birch, hawthorn, *Arbutus*, &c, around the hotel of Glengariff; and the hills around are covered with peat to their summits, so as to render the new mountain road with its tunnel far from unwelcome. The rocks by the road-side were everywhere covered with *Polytrichum urnigerum* in fructification; and *Saxifrages* and *Sedums* were all out of fruit. Much of the grass on the rocks (*Festuca ovina*?) is viviparous; but except the blue *Jasione* and *Erica Tetralix*, there were few flowers remaining even in the beginning of August. Mosses, *Jungermannias* and Lichens abound everywhere. Dr. Taylor named the following:—

<i>Trichostomum polyphyllum</i> and fasciculare. Rocks.	<i>Hypnum ruscifolium</i> . Rills and springs.
——— <i>lanuginosum</i> . Mountain.	<i>Polytrichum commune</i> , gracile, aloides, juniperinum. Rocks.
<i>Entosthodon Templetoni</i> . Rocky streams.	<i>Weissia heteromalla</i> . Ditto.
<i>Hypnum flagellare</i> , brevirostre. Woods.	<i>Dicranum flexuosum</i> . Mountains.

Usnea florida, *Parmelia caperata*, *Sphærophoron compressum*, *Scyphophorus pyxidatus*, *Cenomyce uncialis*, *Jungermannia nemorosa*, *cochleariformis*, *albicans*, *Taylori* and *tomentella*.

In company with Dr. Taylor, Mr. W. went to Blackwater-bridge, which is a famous cryptogamic garden of Dr. T.'s; and there he pointed out species innumerable of *Jungermannia*, *Marchantia*, *Sticta*, *Hypnum*, *Hookeria*, *Pterogonjum*, *Bryum* &c

The stream runs through a wooded glen, the rocks of which are everywhere overgrown with mosses and ferns, *Hymenophyllum*, *Asplenium Trichomanes* and *Adiantum-nigrum*, *Lastræa dilatata*, *Scolopendrium*, *Filix-femina* &c. *Euphorbia Hiberna* was in fruit, *Bartsia viscosa* in full flower in the fields, *Hieracium Taylora* &c., and in the hedges round Dr. Taylor's garden, *Dunkerron*, *Lastræa spinulosa* was found, the only spot in Kerry where Mr. W. met with it. On *Dunkerron* mountain Dr. Taylor finds *Lastræa dumetorum*, and an *Equisetum*, which is in Mr. Newman's hands to be named.

Every one who has been at Killarney will be rejoiced to escape the infliction of a description, and to those who have not yet visited its famous lakes and water-falls and the bays of the neighbouring coast, no description would give any adequate idea. Mr. W. was not particularly successful in finding ferns, his attention being constantly occupied by the novelty and grandeur of the views, and the multitude of other objects equally interesting. The following list must stand in the place of an account of the excursions which hundreds of visitors yearly take, and almost as many have written about.

<i>Trichomanes speciosum</i> . Torc cascade.	<i>Lastræa dilatata</i> . Woods.
<i>Hymenophyllum Tonbridgensis</i> and <i>Wilsoni</i> . All the waterfalls.	——— <i>dumetorum</i> . Woods, plentiful.
<i>Polypodium vulgare</i> , v. <i>serratum</i> . Woods.	——— <i>Oreopteris</i> . Mangarton.
The Irish var. Muckruss abbey.	——— <i>Filix-mas</i> . Common.
<i>Scolopendrium vulgare</i> and <i>Ceterach officinarum</i> . Muckruss demesne.	<i>Lomaria spicant</i> . Abundant.
<i>Osmunda regalis</i> . Lakes.	<i>Polystichum angulare</i> . Muckruss.
<i>Asplenium Adiantum-nigrum</i> . Var. β .	<i>Lycopodium alpinum</i> and Selago. Mangarton.
Gap of Dunloe.	<i>Isoetes lacustris</i> . All the lakes.
——— <i>Trichomanes</i> , var.	<i>Equisetum elongatum</i> . Muckruss.
——— <i>viride</i> . Mangarton.	<i>Polypodium Phegopteris</i> . Muckruss (Dr. Taylor).
——— <i>Ruta-muraria</i> . Walls, Cloghereen.	——— <i>Dryopteris</i> and <i>Lastræa Thelypteris</i> . Muckruss (Mackay).
——— <i>marinum</i> , (Newman).	

Mr. W. could not find *Aspl. marinum*. The plants in flower were: — *Hypericum Androsæmum* &c., *Scutellaria minor*, *Achillæa Ptarmica*, *Euphrasia* with purple flowers, Mangarton, *Saxifraga umbrosa* and *stellaris*, *Orobanche minor*, Muckruss abbey, *Circæa Lutetiana*, *Lysimachia nemorum*, *Anagallis tenella*, *Veronica officinalis*, *Chamædrys* and *serpyllifolia*, *Lotus corniculatus*, *Epipactis latifolia*, abundant, a few flowers remaining, *Calluna vulgaris* with white flowers.

Mr. Woodward afterwards visited Brandon hill, on the Dingle promontory, and gathered *Polystichum Lonchitis* and *Cystopteris dentata* in the clefts of the rocks near its summit; also *Asplenium Adiantum-nigrum*, *Trichomanes* and *marinum*, *Athyrium Filix-femina*, *Polypodium vulgare*, *Hymenophyllum Wilsoni*, *Lastræa dilatata*, *dumetorum* and *Filix-mas*, *Osmunda regalis*, *Lomaria spicant* and *Pteris aquilina*.

The plants in flower were *Carex Oederi* and *pilulifera*, which form great part of the herbage; *Juncus squarrosus*, *Jasione perennis*, *Tormentilla*, *Polygala*, *Utricularia minor*, the wild thyme, *Rhinanthus*, *Oxyria*, *Pedicularis palustris*, *Scabiosa succisa*, *Ranunculus Flammula*, *Hypericum elodes* very abundant, *H. pulchrum*, *Saxifraga umbrosa* in flower, *S. Geum* and *hypnoides* out of flower, *Aira flexuosa*, *Agrostis vulgaris*, *Veronica serpyllifolia*, *Lythrum Salicaria*, *Lycopus europæus*, *Angelica sylvestris*, *Silene maritima*, *Statice Armeria* (in flower on the summit of Brandon, 3150 feet

above the sea), and *Narthecium ossifragum*, a few flowers of which still lingered. *Pinguicula grandiflora*, the leaves of which spread out in yellow stars over the ground in every part of Kerry, was entirely out of flower. Mr. W. was not at the time aware of Mr. Moore's discovery of the *Trichomanes* at Mount Eagle, and was unable to spare a day for the search after *Adiantum* at Cahir Conree or Sibthorpe at the Conner cliffs. Passing up the Shannon to Lough Derg, Mr. W. noticed *Ceterach*, *Trichomanes* and *Ruta-muraria* on the stone walls and bridges; after which his botanizing was confined to the College and Glasnevin Botanic Gardens at Dublin.

November 29, 1843.—Seventh Anniversary Meeting. J. Reynolds, Esq., Treasurer, in the chair.

From the Report of the Council it appeared that 13 new members had been elected since the last anniversary; and that the Society now consists of 159 members.

The Report of the Herbarium-committee was read, and stated that many interesting British plants had been presented, including several species of *Carices* collected by the late Mr. G. Don, which were presented by Mr. S. P. Woodward. Specimens of *Carex paradoxa* (*Willd.*), *Borkhausia setosa* (*DC.*), *Neottia gemmipara*, *Convallaria bifolia*, *Statice rariflora*, and other valuable plants, had been received. Mr. Edwin Lees had presented a collection of British Rubi, comprising nearly all the species.

Numerous interesting Irish plants had been received from Mr. W. Andrews, including many duplicates of *Trichomanes speciosum*.

Distribution of Duplicates.—The parcels of plants sent to the members in return for their contributions had given much satisfaction: and in nearly every instance the Committee were enabled to send the return parcel within a fortnight after the receipt of the contributor's own parcel.

Since the printing of the Catalogue of British Plants now used by the members in marking their desiderata, several new species have been added to the Flora of the country, which, of course, do not appear in the catalogue. As far as these novelties can be obtained, the Committee will distribute them through the parcels sent out to contributors, together with any other specimens which may afford the opportunity for correcting errors of nomenclature, or in any way elucidating the Botany of Britain. For the common benefit of members it is particularly requested that contributors will send as many duplicates as they can of all such novelties.

Among the specimens now ready for distribution are the following. A few specimens of *Statice rariflora*, obtained through the kindness of Mr. Notcutt; an ample supply of the true *Crepis biennis*, presented by the Rev. A. Bloxam; the true *Primula elatior* (*Jacq.*), received from Mr. E. Doubleday, together with the varieties of *P. vulgaris*, which are often mistaken for the former. The true *Eriophoron gracile* (*Koch*), known to very few English botanists before the summer of 1842. *Linaria spartea*, naturalized at Walton, in Surrey. *Bromus commutatus* (*Schrader*), so very frequently misnamed *B. arvensis* (*Linn.*) Varieties of *Betula alba*, which are described as species by several botanical authorities. *Festuca loliacea* passing into *F. pratensis*; *Lolium multiflorum*, &c.

Label-Book.—The original labels sent with specimens are carefully preserved, and those which are not required for introduction into the reference-herbarium along with the specimens, will be fastened into a book, as a permanent record of the localities in which the specimens have been collected.

Local Herbaria.—Dr. Ayres has sent a portion of the Flora of Thame, Oxfordshire, and engaged to complete it; and a full set of the flowering plants of Esher, in Sur-

rey, has been collected, and will be sent to the Society as soon as they can be glued down to paper in the manner prescribed by the Committee. Other members are collecting the herbaria of their respective districts, and the Committee hope, next year, to report the addition of several local herbaria.

Foreign Plants. — The donations of foreign plants received during the past season far exceeds that of any former year. The Royal Horticultural Society of Cornwall has sent a very large collection of East-Indian plants, comprising specimens collected at Madras by Dr. Wight, and at Assam by Major Jenkins.

A very large collection of North-American plants had been received from Dr. Gavin Watson and Mr. R. Kilvington; and Mr. E. Doubleday had presented 300 species from Ohio. A collection of specimens from Western Australia has been presented by Mr. Turner; and Mr. Adam Gerard has sent some valuable plants collected at Sierra Leone.

Cryptogamic Collection, (Ferns). — British ferns have been received from various members; and in every instance where specimens have been received from localities not hitherto recorded in the collection, the most characteristic have been selected and introduced, in accordance with the principle laid down by the Committee, of extending the series to every locality that can be obtained for the rare species, and every county or district for the more abundant. It has also been made an object to ascertain the geological range of each, as well as its geographical distribution. The abundant supply of *Lastræa cristata*, *Asplenium lanceolatum*, *Adiantum Capillus-Veneris*, and *Trichomanes speciosum*, has enabled the Committee to distribute them to all members who applied for specimens.

Mosses, Lichens, Hepaticæ and Algæ. — The following species of mosses new to the British Flora, have been presented by Dr. Thomas Taylor: — *Trichostomum saxatile* (Taylor, MS.), and *Bryum recurvifolium* (Taylor, MS.); and the following new species of Hepaticæ: — *Jungermannia reclusa*, *fragilifera*, *germana* and *riparia* (all Taylor, MSS.): together with authentic specimens of the newly-determined species, — *Dicranum scoparium* and *D. Dillenii* (Taylor). Mr. G. H. K. Thwaites has sent a large collection of mosses, chiefly collected by him in the neighbourhood of Bristol, including many new species. Dr. Ayres has forwarded specimens of *Peziza cautecaulis* and *Hystericum rubrum* discovered by him in Oxfordshire.

In concluding their Report, the Committee called upon the members for renewed exertions to make the collection forming by the Society as complete as possible, and to render their herbarium a permanent standard for the determination of plants: and members and contributors are particularly requested to send monstrosities, and any specimens differing from the common form.

The Reports of the Council and Herbarium Committee were unanimously adopted; a ballot then took place for the Council for the ensuing year: when J. E. Gray, Esq., was re-elected President. John Miers, Esq., F.R.S., J. F. Young, M.D., and A. Henfrey, Esq., A.L.S., were elected new members of the Council in the room of G. Francis, Esq., H. A. Meeson, M.D., and Adam White, Esq., who retire from the Council in accordance with the rules of the Society.

Mr. J. Reynolds, Mr. G. E. Dennes, and Mr. T. Sansom, were respectively re-elected Treasurer, Secretary and Librarian.

December 13. — The President nominated Hewett C. Watson, Esq., F.L.S., and John Miers, Esq., F.R.S., Vice-Presidents. *G. E. D.*

THE PHYTOLOGIST.

No. XXXIV.

MARCH, MDCCCXLIV.

PRICE 1s.

ART. CXCVIII.—*Researches in Embryogeny.* By W. WILSON, Esq.

(Continued from p. 735).

THE following is a summary of what has already been published in the 'London Journal of Botany' for December, and is here added as a necessary sequel to what has already appeared in 'The Phytologist.'

Since the time when Dr. Giraud's article on *Tropæolum majus* was partially noticed, I have made that plant the subject of close examination; and the result is that I am compelled to dissent from Dr. Giraud's account in several particulars. It is especially objectionable because (contrary to the evident design of the writer) it lends undue countenance to the theory of Schleiden, in the erroneous statement that there exists a traceable mass of "conducting tissue of the style into the carpellary cavity as far as the exostome." In researches like these, it is seldom that the positive statements of other observers can be absolutely disproved; but here the error admits of demonstration. Dr. Giraud says concerning the "suspensor," that its upper extremity protrudes "through the apex of the nucleus and the micropyle," and that from this extremity a number of cells "hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity." Here we have the position of the supposed passage distinctly marked, as being *above the micropyle*; whereas it will be seen that the supposed "loosely hanging cells" must belong to a particular portion of the "suspensor" which never protrudes beyond the micropyle in the manner that it is stated to do. The curious structure and development of this part has escaped the scrutiny no less of Dr. Giraud than of Schleiden and other observers. In the following remarks I shall adopt the term suspensor for the body extending upwards from the embryo, though I am not satisfied that it is quite in accordance with the original views of Mirbel thus to apply it. Schleiden, in his attempt to account for the manner in which the suspensor gains egress from the coats of the ovulum (for there are really two of these surrounding the nucleus), invents a spurious theory, and gravely asserts that these coats become "obliterated" or undergo "resorption;" and thus the apex of the suspensor is laid bare; whereupon it assumes the form represented at fig. 3; the part *a* being directed

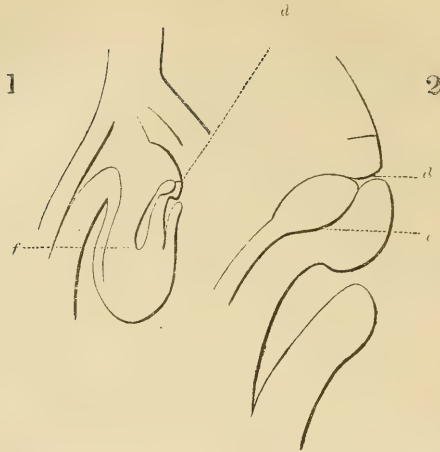


Fig. 1.—Longitudinal section of ovulum from a flower of *Tropaeolum majus* previous to fecundation, with the principal part of the carpellary integument removed, showing the micropyle *d*, and the embryo-sac *f*.

Fig. 2.—A portion of the same more highly magnified, showing the micropyle *d*, and the primary utricle *e*.

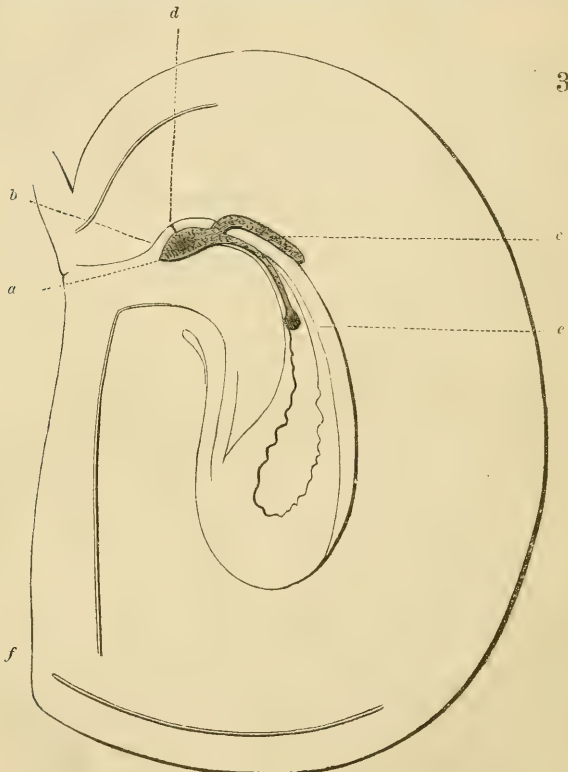


Fig. 3.—Longitudinal section of unripe seed soon after the protrusion of the suspensor; *c*, the posterior process; *a* the anterior process of the suspensor; *b* the swelled knob connecting both processes with the lower portion of the suspensor; *e* the embryo in a very early stage; *d* the micropyle; *f* the pore to which the process *a* extends at the period of maturity.

towards the axis of the flower. Dr. Giraud, on the other hand, as positively asserts that the suspensor passes out at the micropyle, through which "it may be drawn by a slight traction completely out of the nucleus, along with the suspended embryo." Both of these accounts are quite at variance with the fact. The swelled knob, *b*, never extends beyond the micropyle, but is in every stage included within the coats of the nucleus, and from this knob are sent forth two filamentous processes, of which only the posterior one (*c*) has hitherto been noticed. This process does not pass out at the micropyle, but perforates the coats of the ovule immediately below it on the outer side.

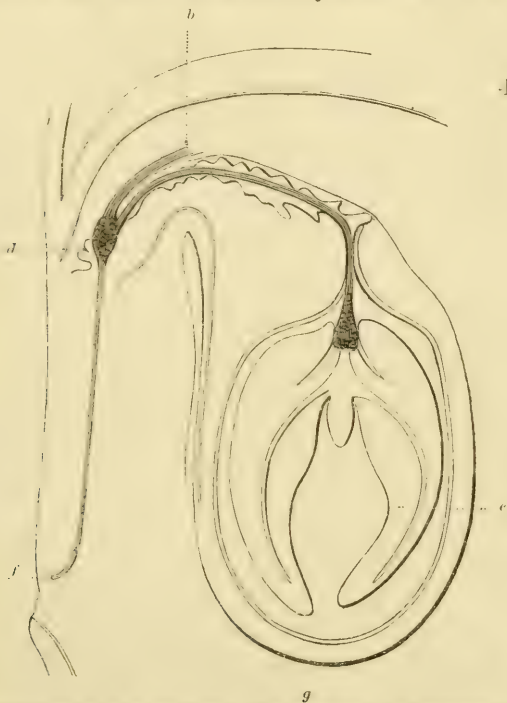


Fig. 4.—Longitudinal section of the ripe seed; —*d* the micropyle; *f* the extremity of the anterior process of the suspensor. The posterior process is continued from *b* to *g*; *e* the embryo.

The anterior process (*a*) first pushes its way through the substance of the neck of the ovule; then through what may be considered the placental tissue. It then reaches, or forms for itself, in the substance of the carpellum, at its inner angle, a canal which lies parallel with and very near to the common axis of the three carpella; and passing along this canal the process arrives at the lowest point of attachment of the carpellum with the receptacle where there exists a small pore. The carpellary integument would thus seem to constitute an essential part

of the seed, and its removal before sowing would most likely prevent the seed from germinating; for it seems reasonable to conclude that the two processes of the suspensor exercise the function of radicles; and at least one of these would be broken off in the act of removing the carpellary coat. It is a curious circumstance that the ovulum in this genus has no free funiculus, and that its coats forming the primine and secundine are so blended with the rest of the tissue which connects the ovulum with the carpellum, that no positive line of separation can be detected in that part. Indeed it is only by an attentive examination of the micropyle that the existence of two coats can be clearly ascertained.

It is proper that I should notice here another somewhat mistaken view entertained by Dr. Giraud, who states that there exists before impregnation "a small elliptical cavity near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells: this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome." It would be more appropriate to say that the *membranous lining* of the cavity constitutes the embryo-sac. The cavity, however, is not confined to the apex of the nucleus: its form and dimensions are represented at fig. 1, which exhibits a longitudinal section of the ovule and the contained nucleus. If the lining of this cavity be, as I suppose, the embryo-sac, the contained embryo with its suspensor must have a different relation to it from what has been hitherto advanced by either Schleiden or Mirbel; for about the period of fecundation the embryo forms a small elliptical body, very much smaller than the cavity in which it is lodged; it is indeed so minute as to be with great difficulty displayed under the microscope. Its position and relative size are dimly seen at *d*, fig. 1, and more clearly represented in the more highly magnified fig. 2. This rudimentary embryo is described in Dr. Giraud's paper as "a quantity of organizable mucilage enclosed in the embryo-sac." It is true that the whole of the nuclear cavity is lined with a lax delicate membrane, easily separable from the nucleus itself; and that at the time when the suspensor is about to perforate the coats of the ovule, this membrane may be traced from the apex of the suspensor to the bottom of the cavity, clearly disproving what Schleiden has asserted concerning the introversion of the embryo-sac by the intrusion of a pollen-tube.

I am at a loss to understand in what mode Dr. Giraud has been able to identify "the fovilla and its granules," which he records as having been found abundantly in the passage leading from the style to the exostome, at the time indicated by his "fourth period." If the

process *a* of fig. 2 be regarded as a kind of finger-post, it would lead to the conclusion that he has mistaken for fovilla the particles of amydon which are found in abundance in the neck of the ovulum.

Warrington, January 12, 1844.

W. WILSON.

ART. CXCIX. — *Reply to Mr. Edmonston's 'Remarks on Botanical Classification.'* By PH. B. AYRES, Esq., M.D.

Thame, Oxon, January 20th, 1844.

SIR,

I have waited, until now, with the expectation that some more able correspondent of your journal would have replied to the remarks of Mr. Edmonston on the natural arrangement of plants; but as no one has come forward, I shall endeavour to answer his objections to that system.

With his first propositions, "that the present system of entirely dispensing with an introductory or artificial scheme, is not only wrong in theory and opposed to the principles of philosophical classification, but almost impracticable in practice;" and, "that a simple artificial scheme is absolutely necessary as an easy introduction to the study of the science, by which a sufficient knowledge of species may be gained to enable the student to turn to the more complicated generalizations of the other system;" — I in part agree. That an artificial scheme is necessary to an *easy* acquirement of the science, is tantamount to saying that an alphabetical arrangement is necessary to the finding easily any particular subject in a bulky Encyclopædia, or a good index to any other work of reference; and such is the artificial system of Linnæus to the vegetable kingdom. The assertion of the absolute impracticability of learning Botany without the assistance of an artificial scheme is absurd; inasmuch as species may be discovered by the natural system, although, I acknowledge, with greater difficulty. It is easier, for example, to find a species in any work on descriptive Botany, provided the name be known, by turning to the index, than to wade through the descriptions of classes, orders and genera to arrive at it. Exactly in the same manner is it easier to turn to the Linnæan index, than to wade through the long analyses of natural orders given in Lindley's 'Introduction to the Natural System.' With similar restrictions we may acquiesce in the third proposition, "that what was then (in the time of Linnæus) necessary for the state of botanical knowledge generally, is, I contend, still indispensable to students individually;" that is, a good index of plants!

From the next proposition I must entirely dissent ; namely, that "Nature creates species;" for it is easy to perceive that the term species is applied to an assemblage of individuals, which, from their great resemblance to each other, and from their capability of propagating their like, are called *species*. Were the *creation* of *species* allowed, I cannot see any rational objection to the admission that genera, orders, classes, &c. were created ; for what is true of a smaller assemblage may be true of a larger one. On the other hand, I contend that Nature simply created individuals capable of propagating their kind ; and if we trust to the Mosaic account of the creation, we shall see reason to believe that plants as well as animals were individually created. It is evident that the term species applies to one of the primary inductions from a comparison of individuals ; not that a species has any absolute existence, but is merely the conception or expression of the points of resemblance of a certain number of individuals bearing the greatest resemblance to each other. Another argument against Mr. Edmonston's view, is the fact of the existence of varieties ; a still lower induction from individuals !

Two other propositions are contained in the same paragraph of Mr. Edmonston's letter. 1. That it is difficult to establish the hypothesis that Nature has created plants upon a certain plan, and thrown them into classes, orders, genera and species : and—2. That this scheme of Nature is identical with one or other of the natural systems.

I cannot discover the difficulty that Mr. Edmonston conjures up against the proof that Nature has followed a plan in the creation of plants ; for the fact that a plan has been followed in their creation, is established by the simple fact, that plants are capable of being arranged and distributed into classes, orders, genera and species ; for had they been created at random, they would form a chaotic mass, and no such regular gradation of affinities could have been established. The very fact that one great group of plants possesses distinct sexual organs, while another is destitute of them ; and that the individuals belonging to these two great divisions possess many other points in common (as for example the presence of vessels in the sexual group), and that these are connected by certain oscillatory groups ; is sufficient evidence of a plan in the creation of plants. Unless a plan were followed, all attempts at classification would be futile.

By what I have said above I do not mean to infer that what we term classes, orders, genera and species were formed by Nature, for that would give these abstractions real existence ; they are indeed nothing more than creations of the mind of man ; they are the expression of the resemblances of plants one to another in a series of ab-

stractions or inductions. We cannot then say of any of our arrangements of plants, that they are natural in the sense that they have been created by Nature; but that they are natural in the sense that they bring together those plants that have the strongest analogies.

Now this brings me to the second proposition, "that this scheme (or plan) of Nature's is the same as one or other of the natural systems." Supposing it has been proved above that Nature has followed a plan in the creation of plants, and that consequently plants have such analogies to each other as to enable us to arrange them in species, genera, orders and classes; it is evident that that system will approach nearest to the plan of Nature, which exhibits the greatest number of analogies in its construction, and that brings together in its various groups those plants that bear the greatest resemblance to each other. Your correspondent asks whether any one of the natural systems corresponds or is identical with the scheme of Nature? He will perhaps think himself triumphant when I answer, *No*. But his triumph will be short when I in return ask him the following questions. Is our knowledge of Nature perfect, and are the general theories of any one of the natural sciences incapable of change? Does not the history of each science (save the Mathematical) show a series of changes in its general propositions? Has not all Natural Philosophy undergone great changes, and is it impossible that it should hereafter undergo still greater changes? If then all sciences have been and still are liable to change; why should not our science undergo such changes? But I shall be glad to be informed what botanists have considered any form of the natural system as a settled and perfect system; and who does not expect changes in system contemporaneous with the increase of our knowledge of the vegetable world? A botanist who thinks that *all* has been done, that the science is perfect, and should undergo no further alterations, I should think a fit inmate for a lunatic asylum!

The quotation from Dr. Lindley's 'Key to Botany' is not sufficiently ample; Mr. Edmonston should have added the next paragraph, when it would read thus: — "What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown, are in *one* sense artificial, inasmuch as Nature recognizes no such groups. Nevertheless, consisting in all cases of species very closely allied to each other, they are in another sense natural." The addition of the last sentence very much alters our notion of Dr. Lindley's expression; for now he implies that Nature has not indeed created species, orders, genera, or other groups as such; but has imprinted such characters and affinities on plants, as

enable us to throw them into groups approximating more or less to the scheme of Nature, and in that sense natural.

Mr. Edmonston's remarks on the process by which botanical knowledge is or may be most easily acquired, are for the most part good ; still I cannot help considering him mistaken on some points. For example, he says that a finished botanist has no need of classification ; and here I differ from him. I grant that a botanist who knows all the British plants, does not need classification for the purpose of distinguishing species, since he knows them and their characters ; but still he needs it to show their analogies and affinities : and I contend that were a man capable of comprehending in one view the whole vegetable kingdom, with all the distinctions and analogies of species, the natural tendency of his mind would compel him to throw them into groups ; and supposing his knowledge perfect, he would construct a perfectly natural system. Hence the natural system will become more and more perfect by its progressive changes, and approximate more and more to a conformity with Nature. It appears to me that Mr. Edmonston, throughout his letter, lays more stress on the distinguishing of species from each other, than combining them into a coherent whole. He would consider Botany as an analytic rather than a synthetic science ; or both combined.

Descending from the high ground we have hitherto occupied, I must be permitted to notice a few of the detailed objections put forward by Mr. Edmonston against the natural system. He says that there has never been a system which was not liable to exceptions, yet he expects that the natural system should be liable to *none* : and commencing with the three primary groups — Mono- Di- and Acotyledons, he discovers a few exceptions, and these he may be permitted to make the best of. But what would Mr. Edmonston say, if the same species (Nature only creates species) should be found usually with two, but occasionally with three or four cotyledons ? Would he separate the individuals and place them in the two primary divisions, although in other respects they perfectly resembled each other ? Yet this would be necessary to produce his idea of uniformity. Such a circumstance has been observed in *Sinapis ramosa*, and is figured in Decandolle's 'Organographie,' plate 53. It is true that Acotyledonous plants may be found among Dicotyledons ; indeed we should not expect two seed-leaves in a plant entirely destitute of leaves, like the *Cuscuta*, although in all other respects it may be and is accordant with our idea of Dicotyledonous structure. But if Mr. Edmonston will cast his eye over the following table, he will perceive that the in-

dividuals of these primary groups are distinguished in all parts of their structure.

ROOT.	STEM.	LEAVES.	PRTS. OF FLOWER.	SEED.
Endorhizous.	Endogenous.	Reticulate.	Ternary.	Monocotyled.
Exorhizous.	Exogenous.	Parallel Veins.	Quaternary or Quinary.	Dicotyledonous.
Heterorhizous.	Acrogenous.	Forked Veins.	Absent.	Acotyledonous.

Here the Monocotyledons are Endorhizous, Endogenous, with parallel-veined leaves, and a ternary division of the flowers; while the Dicotyledons are Exorhizous, Exogenous, with reticulate-veined leaves, and a quaternary or quinary division of the flower. Here is a set of characters which will clearly distinguish a Monocotyledonous from a Dicotyledonous plant, although some one or other of the characters may be departed from in a particular instance. Moreover, Mr. Edmonston forgets that the definition of the Dicotyledonous group includes those plants that have two or more *opposite* cotyledons; while that of Monocotyledons admits plants with two cotyledons, if they are *alternate*. Lindley, in his definition of Dicotyledons says, "Embryo with *two or more opposite* cotyledons;" and in that of Endogenæ or Monocotyledons, "Embryo with but one cotyledon, or if with two, then the accessory one imperfect and alternate with the other." After this explanation, the objection to the terms Mono- and Dicotyledons becomes a mere verbal quibble.

What is said above will also answer another objection of Mr. Edmonston's, "that the structure of the seed is too much used in the definitions of the natural school," and "that the characters of the primary divisions ought always, if practicable, to be taken from parts easily seen, or at least not requiring such delicate microscopical investigation as the natural system requires;" for if he finds a plant whose germination is exorhizous, whose stem is exogenous, whose leaves have reticulated veins, and whose floral organs are quaternary or quinary, he may be sure that it is a dicotyledon without an examination of the seed; nay, if he only observe that the stem is exogenous, the leaves reticulated and the parts of the flower quaternary or quinary, he will never be mistaken as to the group to which he ought to refer it; and these parts are, I imagine, sufficiently obvious.

But the examination of the structure of the seeds of plants is moreover absolutely necessary in any system where the affinities of plants are taken into account. Linnæus used the parts of the flower as the basis of his artificial system, as being the least variable of the parts of plants; and it must be allowed that the structure of the seed is even

less variable than that of the other parts of the flower. I can assure Mr. Edmonston from personal experience, that the dissection of seeds is by no means so difficult as he considers it; that a little practice will enable him to dissect most seeds; and that, except in very minute ones, a common pocket lens will be sufficient for his purpose. I grant that some patience is requisite to do this well.

We now arrive at a very grave charge against the natural system — the indefiniteness of its groups; and Mr. Edmonston has chosen Ranunculaceæ as the subject of his animadversions, finding no character so definite as the one stamen of Linnæus's *Monandria*. Now it is curious that the very indefinite characters of Ranunculaceæ may be included in a definition to which scarcely any (certainly not more than in the Linnæan classes) exceptions can be found. I give this definition from Lindley's 'Introduction to the Natural System,' p. 6. "Polypetalous dicotyledons with hypogynous stamens, anthers bursting by long slits, several distinct simple carpella, exstipulate leaves sheathing at the base, solid albumen and seeds without arillus." Lindley gives the following exceptions or anomalies. "In *Garidella* and *Nigella* the carpella cohere more or less. In *Thalictrum*, some species of *Clematis* and some other genera, there are no petals. *Pæonia* has a persistent calyx." Now does it not strike Mr. Edmonston as exceedingly improper that plants possessing a corolla should be placed in the same Linnæan genus with those in which it is totally wanting!! We must surely complain of the genus before we find fault with the order. I would suggest the revision of the genus to Mr. Edmonston.

In *Garidella* and *Nigella* it is true that the carpels are more or less coherent. I do not happen to have access to detailed descriptions of any species of these genera; but, if I am not mistaken, the degree of cohesion of the carpels varies very greatly in different species, so that in some they are almost distinct. In *Actæa* I find that the carpella are reduced to one, and that one has taken a baccate form, exactly as some Leguminosæ are drupaceous.

Mr. Edmonston has unfortunately fallen into the error of taking the detailed descriptions of the natural orders for their distinctive character; and he has found in the former that degree of indefiniteness which might be expected in giving a detailed account of the structure of a large group of plants. Mr. Edmonston, in criticising some expressions of Dr. Lindley, with reference to the two great systems, says,— "Now if it be the case that the student must go through the same process — examine the same parts — in the one as in the other system, it will be singular if the amount of knowledge is not equal. In fact

the examination necessary for the knowing the genus and species of a plant, after you have got at its class and order by the Linnæan system, gives as great an amount of information concerning the plant itself, as if this end were attained by the natural system, with this difference, that the information is far more easily acquired and the process not nearly so complicated."

Here I submit that Mr. Edmonston labours under a very grave error, from his want of appreciation of the objects of the natural system. It is true that the student may gain an equal knowledge of the plant itself as by the natural system; but when he has obtained that knowledge, what has he discovered of the relations of the plant to other plants, farther than the generic group. When he rises above that group, and comes to the orders and classes, what does he find but "combinations of disjointed things"—genera associated that disagree in every particular, excepting that they have the same number or arrangement of stamina and pistils, and even then, there are numerous exceptions to these numbers and arrangements!! If we consider plants in their affinities or properties, we shall find that the Linnæan groups are, for the most part, forced and unnatural, while the reverse is usually the case with the natural orders. In saying this, I do not mean to deny that there are numerous exceptions to the natural system, but as that system can never be perfect until the whole vegetable kingdom is known, these exceptions must still exist while man is less than omniscient!

I will conclude with, I fear, a rather long extract from Swainson's admirable treatise 'On the Geography and Classification of Animals,' which sets forth, in better language and more forcible manner than I am able to employ, the differences and uses of the two systems; at the same time remarking that Linnæus himself could not rest contented with his own admirable artificial scheme, but sketched out a plan for a natural one!

"What, then, is the difference between an artificial and a natural system? The first is for the ready discrimination of species; the latter for the elucidation of those resemblances which such species bear to others in all their varied and complex relations. The one stops where the other begins. We make use of an artificial system to become acquainted with the name of a species; and to learn all that has been written on its peculiar structure. We turn to the natural system, to know the probable station of this species in the scale of being, the affinities it possesses to others, and the analogies by which it is related and represented. Hence the perfection, as we have frequently intimated, consists in the clearness and precision of its subdivisions, and the facilities which it affords to determine the name of the object we are in search of. In this respect a good artificial system is to be judged by the same rules as those by which

we should decide on the merits of a copious index to a voluminous publication, for the purposes of both are the same: both are equally useful, and the merit of both lies in clearly directing the reader to the precise point on which he desires information. A good artificial system is, therefore, not only a useful, but even, in some respects, a valuable invention, requiring much more skill than is generally supposed; and it is, perhaps, much more adapted for general use than any other. The most admirable classification of this sort ever invented, is that denominated the sexual system of plants, by Linnæus. Many natural assemblages are preserved without any great violation of the principles on which he set out. This is always a great recommendation to an artificial system, yet it is by no means necessary to its formation. Natural affinities may be overlooked wherever they interfere with precision of arrangement, the first are secondary, the latter primary. We open an artificial system to come to the knowledge of a matter of fact; but if we wish to proceed farther, and to know how this fact bears upon *other* facts, we turn to the natural system. Such are the uses of the two methods of classification upon which we have been speaking, and such the theoretic distinctions by which they are separated. Between them, however, is a third sort of system, which, from combining artificial division with some regard to natural affinities, are generally termed mixed systems, or half-artificial methods, while others (and generally among this number are the authors themselves), have pronounced them *natural* arrangements."

I fear, Mr. Editor, that I have quite exhausted your patience, and shall now subscribe myself, Your obedient servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CC.—*An Account of a Visit to Teesdale in the Summer of 1843.*

By JAMES BACKHOUSE and JAMES BACKHOUSE, JUN.*

As an account of a visit made last summer by my father and myself to Teesdale and some adjacent parts, may interest the readers of 'The Phytologist,' I send thee some account of it.

We set out on the 28th of 8th month, and proceeded by railway to Darlington; from thence we went to Bishop Auckland, where we left the railway, and walked to Shull between Hamsterly and Wolsingham. There we found *Hieracium boreale*, *Scutellaria minor*, *Listera cordata*, *Vaccinium Vitis-Idæa*, *Pyrola media* and *minor*, *Lastræa Oreopteris*, *Polypodium Phegopteris* and *Dryopteris*, and *Equisetum sylvaticum*. In the native birch-woods at this place, the broad and narrow leaved varieties of *Convallaria majalis* occur; and a robust, upright and very hairy variety of *Veronica scutellata*? is found in ponds. *Dianthus Armeria* occasionally springs up here, where the ling has been fresh burned off. The day following we walked over the moors, by com-

* Communicated by James Backhouse, jun.

pass, to the High-force inn, Teesdale, a distance of about seventeen miles. We met with *Vaccinium Oxycoccos* and *Empetrum nigrum*, especially the latter, in many places. In a swampy place facing the south, about two miles from Shull, we found *Malaxis paludosa* in full flower. Probably the reason of many persons not finding this plant, when searching for it in known localities, is, that they seek it too early in the year. We also met with *Rubus chamæmorus* in several places. When we got within sight of the High-force inn, we descended into the valley of the Tees, near Winch-bridge, where we found *Hieracium rigidum*, *diaphanum*, *umbellatum?* *boreale* and *Lapeyrousii*, *Crepis succisæfolia*, *Galium boreale*, *Thlaspi alpestre*, *Pyrus Aria*, *Melampyrum sylvaticum*, *Trollius europæus* and *Equisetum variegatum*. We visited also the High-force waterfall that evening, near which we found the recently described *Poa Parnellii*, and saw abundance of *Potentilla fruticosa*, several *Hieraciums* and *Cnicus heterophyllus*. During most of the day grouse and curlews were to be seen on the moors.

After a comfortable night's rest at the High-force inn, where there is good accommodation, we set out in the direction of Micklefell: we crossed the low end of Widdy-bank, which is the locality of *Carex capillaris*, *Eriophorum pubescens*, *Bartsia alpina*, *Tofieldia palustris*, *Polygonum viviparum*, *Gentiana verna*, *Gymnadenia albida*, *Saxifraga aizoides* &c., all of which we had found the year previous. We then ascended the face of Cronckley-fell, where were *Allosorus crispus*, *Epilobium angustifolium*, *Arbutus Uva-ursi*, *Hieracium Lapeyrousii*, *pulmonarium* &c. Leaving the locality of *Dryas octopetala* and *Juncus triglumis* on our right, we crossed the top of the fell, where we found *Draba incana*, *Saxifraga hypnoides*, *Helianthemum canum*, *Hippocrepis comosa*, *Lycopodium alpinum* and *Selago* and *Gentiana verna*, the latter in great profusion. Here we saw a large flock of grouse—from thirty to forty. We next ascended Mickle-fell, which is the highest mountain in Yorkshire, being 2,600 feet above the level of the sea. *Saxifraga stellaris*, *Sedum villosum* and *Cochlearia grænlantica* were growing in the streamlets which descend from it. The top of Mickle-fell is limestone covered with grass, thickly interspersed with *Gentiana verna*. In the margins of the springs which emerge from under this limestone, *Epilobium alsinifolium* grows in abundance. Descending the west side of this mountain, we crossed Maizebeck and the Tees, below Cauldron-snout; near the junction of these rivers is a spring, filled with *Saxifraga stellaris*. We found three small plants of *Woodsia Ilvensis* on Falcon-clints. A large bird of prey was sailing round the tops of these crags, which we thought was

an eagle, but it did not come near enough to enable us to determine this with certainty. We then ascended the rocks by Cauldron-snout, and returned to our quarters across the back of Widdy-bank-fell, where, in a stream from under the limestone, we found *Juncus triglumis*, *Tofieldia palustris* and *Kobresia caricina*. The sides of this stream were adorned with *Bartsia alpina*, *Primula farinosa* and *Saxifraga aizoides*, down to its junction with the Tees. *Festuca vivipara*, *Sesleria cærulea*, *Thalictrum alpinum*, *Gnaphalium dioicum*, and several other interesting plants, also grow near Cauldron-snout. The year previous we found several large tufts of *Polystichum Lonchitis* on Falcon-clints. *Cystopteris fragilis* and *dentata*, *Asplenium viride* and *Trichomanes*, grow there abundantly, together with a profusion of seedling ferns, some of which, at first sight, might be taken for *Woodsia Ilvensis*. There we have also met with a deeply incised variety of *Asplenium Trichomanes*, but we never saw anything of *Asplenium fontanum*.

The next day, accompanied by our friend Jacob Allison of Cotherstone, we again crossed the back of Widdy-bank-fell, passed the head of the Weel, and crossed Crook-bourn into Cumberland; we then crossed the Tees into Westmoreland, and traversed the moors in the direction of Dun-fell. When in a straight line between the Greenburn lead-mine shaft and Dun-fell hush, we came upon the new locality of *Saxifraga Hirculus* (Phytol. 741), which was plentiful, but sparingly in flower. In a limestone hollow near this place, *Asplenium viride* was growing in profusion in the crevices of the rock, and at the bottom, among nettles, we found some large plants of *Polemonium cæruleum* in flower; this was new to the Teesdale district. From this place we crossed over the back of Meldon-fell to Higheup-scar,* an enormous ravine, about a mile and a half long, and 1000 to 1500 feet deep, margined by basaltic cliffs, surmounted on each side by limestone, topped with sandstone crags. After having walked about twenty miles, mostly over bleak barren moors, without a tree and with scarcely a trace of cultivation, the contrast of the scene at this place was very striking, as this great gulf opened to our view the rich fertile vales of the cultivated part of Westmoreland. *Sedum Rhodiola* and *Thlaspi alpestre* were growing in abundance in the clefts of the basalt, and in a deep gorge we had the pleasure of finding several very fine specimens of *Saxifraga nivalis*, which I believe had not previously been found in England. We then returned towards the High-

* Higheup-scar is generally named Eagle's chair in maps.

force inn, passing Maize-beck scars, where *Potentilla Salisburgensis* was abundant, and reached our quarters some time after dark, having extended our walk to about thirty miles.

The day following, taking Winch-bridge in our way, where we found *Potentilla Salisburgensis* (alpestris) and other plants, we ascended Holwick-scars, and crossed over the moors to the old locality of *Saxifraga Hirculus* (which we found in abundance) near the junction of the river Baulder and the Black-beck. We stopped at Cotherstone that night and the next day, and the day following rode by way of Bowes and Brough to Appleby. Near Brough we ascended Hellbeck-scars, which are limestone, where I found *Pupa Juniperi* (a land shell) in great abundance. This is the only locality with which I am acquainted in the north of England. Here we also found *Epipactis ovalis*, *Draba incana*, and a large-leaved variety of *Hieracium murorum*. The following morning, passing Dufton-pike, a curious conical mountain near the village of Dufton, we again examined Highcup-scar, but did not find anything fresh worthy of notice, except *Saxifraga nivalis* in another basaltic gorge.

The day being clear we had a beautiful view of the Cumberland mountains, and in the distance those of Dumfriesshire. That evening we returned to Brough on our way home.

JAMES BACKHOUSE, JUN.

York, 12th Month 22, 1843.

ART. CCI. — *Notes on Carex teretiuscula, C. paradoxa, C. paniculata, and Mr. Gibson's C. pseudo-paradoxa.* By GEORGE LUXFORD, A.L.S., &c.

SINCE the publication of my brief note on these plants in the December number (Phytol. 811), so many opposite opinions have been expressed with regard to the one whose specific identity and relations are more particularly the objects in dispute, and these opinions have emanated from botanists of such high authority, that I must confess I feel considerable reluctance to publish any further observations on the subject; and it is only in redemption of an express promise, and the belief that no harm can possibly arise from a continuance of the discussion, that I now venture to print the following remarks.

Before I begin, however, I may perhaps be allowed to give a short history of my acquaintance with the plant from the neighbourhood of Manchester, which has given rise to the enquiry; and this I am the

more anxious to do, since the opinions which I then gave were hastily conceived, as hastily expressed, and drawn from the examination of an insufficient number of specimens. I think it right to mention this, because there is a possibility that in more than one instance the opinions at that time privately given, may be found to be at variance with those subsequently formed.

Last summer I received from Mr. Sidebotham, of Manchester, specimens of some *Carices* on which he requested I would give him my opinion. At that time I happened to be much engaged, and was consequently unable to bestow on the specimens the attention which the subject required. Among them were examples of the disputed *Carex* from "Seamon's moss-pits;"* and these I could refer to no other species than *Carex teretiuscula*,† believing it to be that plant with its habit somewhat changed by local or other circumstances, in consequence of which the inflorescence had assumed a more elongate form than usual. Believing this, I was somewhat surprised to learn from Mr. Sidebotham, that some of his botanical friends, as well as himself, considered the plant to be the *C. paradoxa* (*Willd.*), which had then been recently introduced to the notice of botanists in Mr. Babington's Manual, as an established British species, found in Ireland. After strenuously endeavouring to discover a correspondence between the Manchester specimens and the description of *C. paradoxa* as given in the Manual, I began to think that the difficulty lay with myself solely, and that none was presented to others possessing better information on the subject. This led me, though reluctantly, to acquiesce in the opinion that it might be *Carex paradoxa*. Soon after this I was still more surprised to learn from Mr. Gibson, that the plant from Manchester was identical with the one to which he alludes as having "its fruit agreeing with Leighton's figure of the fruit of *C. paniculata*" (*Phytol.* 366), since I was not then aware that Mr. Gibson restricted the use of the term *fruit* to the *nut only*, and I had always applied the term to the perigynium and its included nut.

* I believe that this locality has not previously been given in 'The Phytologist,' by any of the botanists who have written on the subject. I now mention it without hesitation, since, from the circumstance of the locality being expressly stated on the labels accompanying all the specimens of the plant that have come under my notice, it appears to me that there has been no attempt to make anything like a secret of the matter.

† Certainly not to *C. paniculata*, as by an extract from one of my letters to Mr. Sidebotham, it appears I once wrote. That this was merely a *lapsus calami* is evident, I think, from the context. I cannot plead guilty to having ever considered this plant a variety of *C. paniculata*.

At a subsequent period I was much gratified by receiving, in a packet of plants which Mr. Sidebotham had the kindness to send me, some additional specimen of *Carex teretiuscula*, and of the plant which even then had led to considerable discussion. The receipt of these specimens, which were in fine condition, again brought the subject under my consideration; and a renewed examination almost confirmed my first opinion, that it could be no other than a slight variety of *Carex teretiuscula*. Then came Mr. Gibson's note on this plant under the name of *C. pseudo-paradoxa*, (Phytol. 778). In that note Mr. G. has mentioned the relationship of the plant with *C. paradoxa* (*Willd.*), and at the same time correctly pointed out its distinctness from that species. This, it will be remembered, was followed by Dr. Wood's note (Phytol. 809), wherein are minutely described the peculiar circumstances attending the growth of the plant, and which circumstances, in Dr. Wood's opinion, are sufficient to account for the various discrepancies between this plant and *C. teretiuscula*, which he considers the normal form. The very beautiful specimens of the two plants obligingly forwarded by Dr. Wood, together with others, equally beautiful, of *C. paniculata*, in addition to specimens of all the three previously in my possession, formed a valuable store of materials, both for examination and comparison. The note appended to Dr. Wood's communication (Phytol. 811) contained the result of a careful examination of the materials then at my command; and I regret that I have since been prevented from recurring to the subject. Want of space even now compels me to defer the conclusion of my notes to another number; when the remarks I may have to make on these Carices, will be illustrated by figures, which have been most obligingly placed at my disposal by Mr. Wilson. I may in this place, however, be allowed to state, that my opinion as to the specific identity of *C. teretiuscula* and Mr. Gibson's *C. pseudo-paradoxa* remains unshaken, nay, it is rather strengthened than otherwise by recent investigations.

Before I conclude I would express my thanks to Mr. R. Spruce of York, for beautiful specimens of *Carex paradoxa*, from Heslington fields, near that city; and to Mr. Wilson and the Botanical Society of London, for the loan of others collected at Westmeath, Ireland, by Mr. D. Moore.

G. LUXFORD.

2, Ebenezer Row, Kennington Lane,
February, 1844.

(To be continued).

ART. CCII.—*Two Botanical Visits to the Reeky Linn and Den of Airley, in April and June, 1842.** By WILLIAM GARDINER, JUN. Esq.

MY first visit to the Reeky Linn was on the 13th of April. I left Dundee with the earliest railway train for Newtyle, and from thence walked the remainder of the way, crossing the hills behind Alyth, and coming down upon the Isla at the bridge of Craig. The only plant of interest noticed in my route was *Bryum albicans*, which grew abundantly on a wet bank between Newtyle and Meigle. In the same locality I found it again plentifully in May, with ripe capsules, and associated with *Dicranum varium*. I took up my abode in Mrs. Robertson's "public," which is conveniently situated within a quarter of a mile of the Linn, and after dinner went out to botanize. The Reeky Linn is a beautiful and picturesque waterfall on the Isla, at the head of the Den of Airly, and about four miles above the castle. The water takes three distinct leaps, and throughout its progress foams like a boiling cauldron, and meeting at the base of the rocks with a jutting cliff which obstructs its fury, a quantity of it is dissipated in vapour, which, rising in the air, seems like a mist or smoke (*Scotticé* "reek"), hence the name that has been bestowed upon the fall. The vicinity of such a place, from abounding in moist rocks, is always rich in vegetation, and here, though too early for most flowers, I reaped a luxuriant cryptogamic harvest. *Sticta sylvatica* covered the rocks in many places, and large patches of the elegant *Jungermannia pubescens* were intermingled with *J. platyphylla* and var. β . *major*, *Hypnum myosuroides*, *commutatum* and *prælongum*, *Anomodon viticulosus* and *curtipendulum*, *Bartramia Halleriana* and *pomiformis*, var. β . *major*, and the lovely *Neckera crispa*. Here and there tufts of *Didymodon Bruntoni* showed themselves profusely in fructification, and, peeping from among them, the delicate calyptræ and bright tawny capsules of *Encalypta ciliata*, and the graceful little *Hypnum pulchellum*. The beautiful *Hymenophyllum Wilsoni* was here, as elsewhere, associated with *Jungermannia spinulosa*. On the banks, chiefly growing on sandy deposits, were *Bryum punctatum*, *rostratum*, *marginatum*, *turbinatum*, *ventricosum* and *hornum*, *Hypnum palustre* and *uncinatum*, *Trichostomum aciculare*, *Dicranum flavescens* and *adiantoides*, *Orthotrichum rupicola* and *Didymodon rigidulus*. Still closer to the water, in shady nooks, dwelt *Marchantia* (*Fegatella*) *conica* and

* Read before the Botanical Society of Edinburgh. Communicated by Mr. Gardiner.

hemisphærica and *Jungermannia epiphylla*; and, bathing in its liquid freshness, floated the dark branches of *Cinclidotus fontinaloides*, and *Grimmia rivularis*, (*Brid.*). Tufts of the elegant *Didymodon capillaceus* looked out here and there from the crevices of the rocks, with, more sparingly, *Bryum androgynum* and *Hedwigia æstiva*. Some of the rocks were encrusted with *Lecanora tartarea*; *Squamaria hypnorum* appeared in several places, and various *Collema*, particularly *C. nigrescens* and *lacerum*, attached themselves to the exuberant mosses. The trees were adorned with a profusion of *Orthotrichum crispum*, *Jungermannia complanata* and *dilatata*, *Ramalina fastigiata* and *fraxinea*. On the moist rocky banks that margined the stream, various *Jungermannia* were abundant, and I culled, among others, *J. Lyoni*, *furcata*, *excisa*, *multifida*, *albicans*, *nemorosa*, *undulata*, and, more interesting than all, *J. Blasia* in fructification, a rarity amply rewarding my day's exertions.

I next morning breakfasted early, and hastened again to the Linn. Crossing the Isla by the bridge of Craig I went down the north side of the stream, and viewed the waterfall from a variety of points, from all of which the eye feasted on pictures of varied grandeur. The shadows of night had departed, and all was now distinct. The sunlight sparkled on the foamy Linn, and seemed to penetrate the deep pool beneath, while the wild cavern on the southern side opened its dark jaws, and displayed a confused mass of the wrecks of fence and woodland which it had gorged in flood and storm. In the upper air now floated the lark's sweet melody, and the thrush, from the yet almost leafless trees poured its matin song. Wood anemonies and primroses were profusely scattered over the rocky and wooded banks; and the thickly springing verdure on every side gave promise of a summer luxuriance of vegetation. And as I thus revelled in the beauty and magnificence around me, and thought of the bright and sunny future, I felt with the poet, that —

“ From Nature and her changes flow
An everlasting tide of joy.”

My walk down the den of Airly, from there being no regular footpath, was rather fatiguing, but the rich succession of wild and rugged scenery, varying at every step, proved a more than sufficient equivalent. And I also added to my former stores, *Anomodon viticulosus* in fructification, *Hypnum curvatum*, *triquetrum* and *velutinum*, *Verrucaria gemmata* and *Adoxa moschatellina*. The vicinity of the castle was reached by noon, and at the base of the rock on which it stands *Hypnum atro-virens* was picked, and a specimen or two of *Equisetum*

Mackaii? close to the water; but *E. hyemale*, which grows here abundantly, was all cropped. Further down the Den, among overhanging rocks, *Bryum androgynum* was plentiful with little heads of gemmæ, and *Tetraphis pellucida* bearing gemmiferous cups, and at its foot, on a marshy bank, *Chrysosplenium alternifolium* displayed its curious flowers. Well loaded, I for this time bade adieu to Airly, and after a long smart walk reached Newtyle in good time for the last train.

My second visit to the Linn was on June 24th, when summer was glowing in all her loveliness. I followed the same route as formerly, and in shallow pools on the "market-moor" of Alyth collected fine specimens of *Pilularia globulifera*. The hedge-rows between Meigle and Alyth were bright with wild roses that perfumed the air, and abundance of *Galium cruciatum* shot up through their verdure: and upon the hills beyond Alyth, *Gymnadenia conopsea* and *Polygonum viviparum* were in luxuriance. The "public" was reached in time for tea, and I botanized about the Linn till nearly 10 o'clock. The same roar of rushing waters greeted my ear as before; but instead of the leafless trees, I now walked under a green umbrageous canopy, through which swelled at intervals the deep-toned music of the ebon bird of evening. My spring hope was now realized, for every crack and crevice of the rocks, every nook and crannie, bank and brae, was loaded with herbage and flowers. *Galium boreale* was abundant, and *Meum Athamanticum* I never gathered in finer condition. *Solidago Virgaurea*, *Crepis paludosa* and *Hieracium murorum* var. *γ. Lawsoni*, reared their golden blossoms from many a fissure in the cliffs, and the silvery foliage of *Alchemilla alpina* adorned the rocks. *Geranium pratense* was plentiful, and with *Carduus heterophyllus*, and the glowing flowers of *Lychnis diurna*, gave a flush of beauty and brightness to many a spot. *Valeriana sylvestris*, *Stellaria holostea*, and a host of other common though beautiful things, crowded on the attention from every side. The cryptogamic tribes were almost smothered by the proud ambition of the higher orders of vegetation, but I still was enabled to add several to my former list, among which the more interesting were *Peltidea venosa*, *Nephroma resupinata* and *Trichostomum polyphyllum*.

On the succeeding morning I gathered on the northern banks a profusion of *Orobis sylvaticus* and *Melampyrum sylvaticum*, and further down the Den, *Melica nutans* and *uniflora*, *Carduus heterophyllus* &c. But the stormy threatenings of the morning were soon followed by a heavy rain, which continued almost without intermission during the remainder of the day, and a thorough drenching to the skin tend-

ed in some degree to cool down my botanical enthusiasm. I searched about, as well as I could under the circumstances, for *Orobanchis niger*, but without success, and in vain looked for the “wet rocks above the castle,” where the *Timmia* grows. In fact, by the time the foot of the Den was reached, I was as wet as if I had come down the Reeky Linn and swam the Isla all the way. But my vasculum had been well filled, and moreover I had the consolation of having chivalrously suffered in a noble cause,—even in the cause of the bright and beautiful Lady Flora.

WILLIAM GARDINER.

Dundee, February 7, 1844.

ART. CCIII.—*Varieties.*

447. *Method of arranging the Cryptogamia in a Herbarium.* Many excellent methods of collecting and arranging herbaria have appeared in the pages of ‘The Phytologist,’ but as these all relate to the Phanogamous plants, I trust the following hints respecting the Cryptogamic tribes — Musci, Hepaticæ and Lichenes, may prove interesting to some of your readers. The more general mode of forming and arranging herbaria for mosses &c. seems to be that of glueing the specimens to the paper, taking care that this shall be of a sufficient transparency and whiteness, that the plant may be examined on holding it up to the light. Now this method is attended with much inconvenience; the different parts of these tribes are extremely minute, and require very careful investigation, the previous application of water is also absolutely necessary to most or all species. Can this be done to a specimen fastened on the paper, without detriment to its texture; and supposing water to be applied, may not the microscope disclose perhaps the most essential parts buried in a mass of glue? The remedy is very simple. Take half a sheet of stout foolscap, and divide this into quarters, which will be suited for the larger mosses. Again, these quarters halved will form another very convenient size. The half sheets divided into thirds, and these halved, will constitute a most useful size for the genera *Hypnum*, *Bryum*, &c. Other forms may be made according to the taste and wants of the collector. Now fold each of these divisions lengthways, so that the under side shall appear three-eighths of an inch beyond the upper: turn this border upon the upper edge, and do likewise with the two ends of the folded paper, you will then have a case somewhat similar to those in which a nurseryman encloses seeds for sale. These cases are to be glued to

paper formed by quartering half a sheet of foolscap, and on each quarter can be laid three or more of the cases (except those of the largest size, two of which will fill the paper). The species may now be distributed according to their respective sizes, and one paper will be allotted to each species, thus leaving a reserve for varieties, and specimens from different localities. The names will be written on each of the cases, and the whole formed into fasciculi, with the generic names outside; two or more fasciculi may be allowed for the more numerous genera. A herbarium formed according to this method is always neat, and easily referred to; the specimens may be taken out of the packets, examined and replaced without incurring any risk of injury. Extra papers can always be added when required. Very little trouble is necessary for drying mosses, Hepaticæ, &c. Specimens should generally be moistened previous to the application of pressure. Old books will be found a convenient substitute for loose paper: the specimens should be placed between the leaves and left untouched till thoroughly dry, nor need they be removed except when required. As directions are always much more easily written than understood, and fearing this might be applicable to the above, I gave them to a lady, requesting that she would put them in practice; and in a very short time, to my great satisfaction, I beheld many papers arranged exactly, though perhaps with greater neatness, like those in my own herbarium. — *F. Townsend; Ilmington, Shipston-on-Stour, January 16, 1844.*

448. *Notice of a Carduus found near Saffron Walden, Essex.* The following is a brief description of a curious variety of *Carduus* (*arvensis*?) found in the autumn of 1843, about four miles from Saffron Walden; it was growing by the road-side, on a poor clay soil, in the neighbourhood of a wood. Only two plants of it were in flower, one of which was spreading and much branched, the other small, but presenting similar characteristics. Near them *C. arvensis*, *acaulis* and *lanceolatus* were growing abundantly. Root creeping: stems much branched, about two feet high, leafy and woolly: leaves nearly similar to those of *C. arvensis*: flowers numerous, on separate stalks, as large as those of *C. acaulis*, and very similar in colour; calyx-scales mostly green; pappus rather short. In general habit it agrees most nearly with *C. arvensis*, but differs in its spreading, woolly stem, in its flowers being thrice the size, and of a crimson colour; in the calyx-scales being less coloured, and in the shortness of the pappus. From *C. acaulis* it differs in its size, *bushy character*, and in its *leaves*; also in its numerous flowers; but agrees in the colour and size of its

flowers and its woolly stem. Specimens of it have been shown to several eminent botanists, who have expressed very different sentiments respecting it, but most of them have considered it an interesting plant, and a form which they had never before seen. One is of opinion that it is an instance of *Carduus arvensis* being diœcious, this plant having the stamens more largely developed, which might account for the difference in the length of the pappus. Another considers that it has nothing to do with *C. arvensis*, but is *C. acaulis*, β . *dubius* of Willdenow's 'Species Plantarum,' and *C. caulescens* of Persoon. A third would give it the name of *acaulis*, had not the stems been of such a height, although he thinks the leaves more like *arvensis*. A fourth is ready to suppose, that it must be a hybrid between *C. acaulis* and *arvensis*, the flowers and hairiness of the stem bringing it exactly to the former, and the leaves and size agreeing with the latter. Several others have expressed opinions similar to one or other of those given above: and when such a difference exists among the most competent judges, I feel unwilling to hazard a sentiment, but the first explanation does not appear by any means to account for the whole of the very striking differences between this plant and *C. arvensis*; with the second I do not feel able to unite, because although *C. acaulis* has been frequently found caulescent in this neighbourhood, and I have a specimen of it gathered last autumn, with a stem *thirteen* inches in height, yet it always preserves, as far as I have seen, its general distinctive characters, and presents a very different appearance to the plant under consideration. I fear that there are not sufficient distinctive peculiarities to constitute it a separate species, and therefore the only other alternative seems to be to consider it a hybrid between *C. arvensis* and *acaulis*, which, though an uncommon occurrence in nature, is by no means an impossible one. Perhaps some of your correspondents may have seen a similar plant, and be able to decide the question, or some clearer light may be obtained after closer observation of it next season.—*G. S. Gibson; Saffron Walden, January, 1843.*

449. *On the dispersion of the Seeds of Oxalis Acetosella.* I think it is not generally known that *Oxalis Acetosella* has the power of projecting its ripe seeds to a considerable distance from the plant. Many of our native plants possess a similar power, such as *Impatiens*, *Cardamine*, *Ervum*, *Ulex*, and other *Leguminosæ*: in all these the expulsion of the seeds is effected by the rapid opening and curling up of the valves of the capsule; in the *Leguminosæ* the two valves become spirally twisted, in *Cardamine* they form a flat coil. In *Oxalis*,

however, the seeds are ejected, not by any movement of the outer valves of the capsule, but by a curious internal bag in which each seed is enveloped. The capsule consists of five cells, each containing one seed, and having an opening at the side. Each seed is enclosed in a closely fitting semitransparent skin; when ripe this little skin acquires the projecting power, having a strong inclination to turn inside outwards, which, continually increasing, ultimately causes a small fissure at the top, and immediately this is effected, the bag rapidly inverts itself, and the seed is thrown out *with a crack* through the opening provided for it; and sometimes the bag itself is thrown out by the violence of the movement, but generally it remains in the mouth of the cell.—*Joseph Sidebotham; Manchester, January 10, 1844.*

450. *Note on Veronica triphyllos.* While examining lately one or two very fine specimens of *Veronica triphyllos*, from the neighbourhood of York, with which I was favoured by my friend Sylvanus Thompson, Esq., I was struck with the great discrepancy between Hooker's description and these specimens. Hooker arranges this plant in the last section of the genus, having the "flowers axillary—solitary," whereas my specimens have the flowers in *terminal racemes*, exactly as in *V. alpina*, *serpyllifolia*, and others of the first division of the genus. Hooker indeed says of *V. triphyllos*, — "flowers subracemose," so that its being placed in a section having axillary solitary flowers, may arise from inadvertence. I may remark that the only other specimen of *V. triphyllos* in my collection, and which I owe to the kindness of Sir W. Hooker himself, shows exactly the same mode of inflorescence as in the Yorkshire specimens above alluded to. I quote the third edition of the 'British Flora,' perhaps the error may be corrected in a subsequent edition, to which at present I have no access. — *Thos. Edmonston, jun.; Baltasound, Shetland, January 27, 1844.*

451. *Villarsia nymphaeoides.* As I am not acquainted with any recorded Scotch habitats of this beautiful plant, it may perhaps interest your readers to know that I gathered it in August, 1840, in a large mill-pond near Glasgow, where it was first observed by Mr. W. R. Murray of Edinburgh. The plant grows in great abundance in this station, intermixed with *Potamogeton*, *Myriophyllum*, and other aquatic plants. I regret I cannot give a more explicit description of this station, from my ignorance of the localities round Glasgow, and it was so dark when we gathered the plant, that we both took only a specimen a-piece as *Nuphar lutea*; and thus we did not pay that attention to the station that we should otherwise have done. The plant

has every appearance of being as indigenous as any of the plants among which it grows. I rather think the pond in which it grows was to the westward of the town; it was large and deep, and the Vilarisia could only be reached in a boat.—*Id.*

452. *Carex boenninghausiana*. I inclose you a specimen of the Crichton-castle *Carex* alluded to in my List of additional Edinburgh Plants (Phytol. 407), and I think you will agree with me in considering it *C. remota*. Since reading the remarks by Mr. Luxford (*Id.* 650) and Mr. Gibson (*Id.* 779), I have carefully examined my numerous specimens from Crichton-castle, gathered at different times, and feel quite convinced of the correctness of my former opinion, that all I had met with in that station were *C. remota*, and none agreeing with the description of *C. boenninghausiana*: some of the Edinburgh botanists were indeed of opinion that my specimens were really *C. axillaris*, and I was inclined to think the same, or rather, that *C. remota* and *C. axillaris* were undistinguishable; for I could perceive little difference between the Crichton-castle plants and what I conceived to be authentic specimens of *C. axillaris* in my herbarium. Shortly afterwards, however, I became acquainted with the *true C. axillaris*, specimens of which I owe to the kindness of my valued correspondent, Dr. Wood, when I at once perceived that they were different both from the Crichton-castle and all other specimens called *C. axillaris* in my collection; and consequently, specimens from eight stations had, to my great disappointment, to be handed over to the *C. remota* sheet. Thus Dr. Wood's specimens stand in my herbarium as the sole representatives of *C. axillaris*, and to these I trusted in comparing my Edinburgh specimens, and in referring them to *C. remota*. I only know *C. boenninghausiana* by Mr. Luxford's and Mr. Gibson's notices, as no work I have access to at present contains a description of it. I would therefore be much obliged if you would examine the specimens now sent, and report. I make these remarks as I think *C. boenninghausiana* must be very rare in the Crichton-castle station, for I very carefully examined all the Carices I could find near the place in hunting after *C. axillaris*, but never found anything nearer it than the plant now sent.—*Id.*

[The specimens sent by Mr. Edmonston are all referrible to *Carex remota*.—*Ed.*]

453. *Note on Cetraria sepincola*. A few days ago I found some specimens of *Cetraria sepincola* near the west side of the island (Unst). I had not previously seen it in Shetland, and indeed it is not, I believe, a common plant anywhere in Britain. The specimens were rather small and without apothecia: they were accompanied by Ra-

malina scopulorum and farinacea and other lichens. Hooker, in his British Flora, says that he has never found Cetraria sepincola but on wood, but these specimens were found on a block of mica-slate.—*Id.*

454. *Remarks on Dr. Ayres' opinion of the Vaucheriæ.* Allow me a few words on the Vaucheriæ. Your correspondent Dr. Ayres (Phytol. 743) seems to wish to annihilate the genus, principally, it would appear, because Vaucher refers his Ectosperma (Vaucheria) terrestris to Protonema velutinum (*Agdh.*), and which latter is now believed to be a rudimentary moss. I am afraid our Algologists will scarcely consent to this summary mode of dealing with the genus Vaucheria, and I think Dr. Ayres can scarcely be acquainted with the V. terrestris of our botanists, or he would not follow Vaucher in confounding it with Protonema velutinum. That the whole genus Protonema is composed of the commencement of other Cryptogamia, chiefly mosses, is, I think, generally agreed on by botanists; but that "the Vaucheriæ are the rudimentary states of the mosses, and that the ovoid vesicles are analogous to granules, and reproduce the primordial state of the moss," is surely an untenable position. What a splendid moss must it be, whose byssoid commencement is one or two feet long, and as stout as a Chara! —yet if Dr. Ayres' views are correct, such is V. dichotoma: and where have the *salt-water* mosses come from to produce V. marina and V. velutina? If Vaucheria is denied a place as a separate genus, so I suppose must Bryopsis and Codium, for these genera are very closely allied to Vaucheria, indeed it is very difficult to separate the latter most singular genus from it by a definite character. As I am on the subject of these Cryptogamia, permit me a word on the plants associated with the supposed genus Protonema in the group Byssoidæ of the Confervoideæ,—*Hooker &c.* (Chlorospermeæ, *Harvey*); these consist of the genera Byssocladium, Mycinema, Chroolepus, Trentepohlia, Protonema, Hygrocrocis and Leptomitus. The whole genus Mycinema appears evidently to be altogether composed of imperfect Fungi, probably Thelephoræ, and Dr. Ayres and others refer M. phosphoreum to a not uncommon state of Auricularia (Thelephora) cærulea. If Chroolepus be retained in the Algæ, Monilia, Helmisporium and many other genera must be removed thither from the Fungi; surely however their structure is completely that of the latter tribe, and Arnott, Carmichael, Hooker, and other eminent Cryptogamists, are of this opinion. It seems to me likely that the Lichen heterophyllus of Smith (Eng. Bot. 2246), a plant which has occasioned considerable perplexity, and which is doubtfully referred in the 'British Flora' to Cornicularia (*Ach.*), is a species of Chroole-

pus or an allied genus. *Hygrocrocis* and *Byssocladium* should surely be classed near the *Mucors*: *Leptomitus clavatus* cannot, by its habitat (dead animals), be an Alga, (Br. Fl. 385): *L. minutissimus* is stated to be the fibrillæ so often found besetting the apices of the *Polysiphonæ*, (Brit. Flor.): *L. lacteus* (*Conferva lactea*, *Dillwyn*) seems a doubtful plant, but if an Alga, would surely rank better with the *Gloiocladæ*, perhaps near *Chætophora* or *Rivularia*. How *Trentepohlia* is arranged in this tribe, I cannot understand; its affinity is surely with *Calithamnion*, *Griffithsia*, &c. among the *Ceramieæ*, indeed I cannot distinguish authentic specimens of *T. purpurea* from *Calithamnion Rothii*; and Hooker says "I am almost inclined to think it may be that species altered by growing in situations where it is only occasionally wet with salt water." I have thrown out these hints in the hope of eliciting some opinion from better Cryptogamists than I can pretend to be.—*Id.*

455. *Note on Equisetum umbrosum.* With respect to your correspondent Mr. Gibson's enquiry (Phytol. 680), whether *Equisetum umbrosum* or *E. arvense* "be the more glaucous of the two," I may remark, having gathered both plants, that Francis is correct in saying that the former is the more glaucous plant. The passage referred to in the 'British Flora' seems likely to be an error of the press, for the light green glaucous colour of *E. umbrosum* is a very apparent and remarkable character, and which distinguishes it, even at a distance, from any other British *Equisetum* that I am acquainted with.—*Id.*

456. *Note on Hieracium hypochæroides, in reference to Mr. Watson's Notes.** I now give the following descriptions of *Hieracium murorum*, *pulmonarium* and *maculatum*, from Smith's 'English Flora.'

"*H. murorum.* Stem corymbose, with a solitary leaf. Leaves ovate-heart-shaped, wavy, with radiating teeth chiefly at the base."—Eng. Flora, iii. 359.

"*H. pulmonarium.* Stem somewhat corymbose, solid, slightly leafy. Leaves lanceolate, deeply and unequally toothed throughout; teeth pointing forward."—*Id.* 360.

"*H. maculatum.* Stem cymose, many-leaved, tubular. Leaves ovate-lanceolate, strongly toothed; teeth pointing forward."—*Id.* 362.

It will be evident on examination that the descriptions above quoted do present characteristics sufficiently distinct to justify the adoption of three species, and I will now see how far my plant will agree with those descriptions. On examination I find my plant to differ from the description of *H. murorum*, in the stem being only *one-* or *two-flowered* (Mr. Watson says it has from *one* to *three*); this cannot be

* The former part of Mr. Gibson's communication is merely a repetition of what Mr. Watson has written at pp. 801 and 841, to which we beg to refer the reader. *Ed.*

considered a corymbose stem: it also differs in having the teeth of its leaves pointing forward, and therefore cannot be said to have radiant teeth. The want of a corymbus and *lanceolate* leaves will serve to distinguish it from *H. pulmonarium*. Its *naked* and *solid* stem will serve to distinguish it from every form of *H. maculatum*. Many other characters might have been pointed out to distinguish the above plants, but as Mr. Watson only refers to Smith, I will seek no other authority and will now conclude with saying that I am much surprised to find that Mr. Watson, after he has paid so much attention to Botany, should consider the absence or presence of medulla in the stems of plants, to be of no value as a character whereby to distinguish them as species. It is to be regretted that such valuable characters are not duly appreciated; but it is an indisputable fact, that unless we submit to a careful investigation, the greatest errors may be committed. *Samuel Gibson; Hebden Bridge, February 10, 1844.*

457. *Enquiry respecting Phascum multicapsulare*, Smith. Permit me to enquire, through the medium of 'The Phytologist,' whether anything is known concerning this moss, which is in all probability distinct from every other described British species. It has usually been regarded as a variety of *P. crispum*, (see Hooker and Taylor's 'Muscologia Britannica' &c.); but it appears from the account given of it in Bridel's 'Bryologia Universa,' i. 48, that Dr. Mohr, having received specimens from Mr. Turner, saw reason to abandon such an opinion; and accordingly, in Weber and Mohr's Bot. Tasch. p. 477, it is separated from *Phascum crispum*, on the ground that it has the *leaves evidently serrulate*; and Smith (Flor. Brit. 1152) describes it as differing from *P. crispum* in having its perichæatial leaves *straight, and never crisped when dry*; also of a more dusky hue. The place of growth is stated to be in cart-ruts in Clapham-park wood, near Clapham-ford end, and other places near Bedford, (Rev. Dr. Abbott). It is, however, figured under the name of *Phascum crispum* in 'English Botany,' t. 618, and at that time Smith entertained no doubt of its being the true Hedwigian species so called. A subsequent change of opinion on the part of Smith, is a strong argument in favour of the moss being distinct; and it is hoped that some one residing in Bedfordshire will endeavour to serve the cause of science in instituting a search for this moss. The numerous capsules on each stem will serve to indicate the plant. — *W. Wilson; Warrington, February 20, 1844.*

458. *Note on the production of Shoots of Cytisus Laburnum and C. purpureus from grafts of C. Laburnum coccineum.* In Mr. Young's

nursery-ground at Milford, near Godalming, there are several trees of *Cytisus Laburnum coccineum*, similar to that in the Royal Botanic Garden at Edinburgh, of which specimens were exhibited at the meeting of the Botanical Society of Edinburgh, on the 8th of June, 1843 (Phytol. 653), in which, from the grafting of the French hybrid—the *C. Laburnum coccineum*, on the *C. Laburnum*, the result has been the production of shoots of three varieties,—*C. Laburnum coccineum*, *C. Laburnum* and *C. purpureus*. I observed these trees in blossom last year, when, as in the Edinburgh tree, the yellow and red flowers were predominant. Even in their present leafless condition they present a singular appearance: the cherry-tree-like branches of *C. Laburnum coccineum* being very distinct from those of *C. Laburnum*, which retain their decayed seed-vessels, while the pendulous tufts of *C. purpureus* appear, at a short distance, like bunches of mistletoe. Mr. Young states that it is about six years since he first noticed the tendency of the mule laburnum to reproduce the forms of the parent plants.—*Henry Bull; Godalming, Surrey, February 19, 1844.*

459. *Republication of Johnson's 'Itinera Botanica.'* We are pleased to observe that Mr. Pamplin is about to republish this interesting work by subscription. The text will be translated verbatim by Mr. A. Irvine.—*Ed.*

460. *Collections of Scottish Plants.* Mr. Wm. Gardiner has announced his intention of preparing, during the ensuing summer, a number of packages of plants, chiefly from the alpine district of Braemar. Subscribers' names received by Mr. Gardiner, Dundee.—*Ed.*

ART. CCIV.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

November 7, 1843.—R. Brown, Esq., V. P., in the chair.

Dr. Bromfield, F.L.S., presented a specimen of a species of *Calamintha* found by him in the Isle of Wight, and regarded as new, (see Phytol. 768).

Mr. Newman exhibited a specimen of *Trichomanes* lately found in the co. Kerry, and supposed to be distinct from *T. speciosum*.

Read, a letter from Joshua Clarke, Esq., of Saffron Waldon, accompanying specimens of *Barkhausia setosa* (*Dec.*), found in that neighbourhood, with a note on the characters and distribution of the species, by Mr. Kippist, Libr. L.S.

Read also the commencement of 'An Analysis of Rhizanthææ,' by Wm. Griffith, Esq., F.L.S.

November 21.—E. Forster, Esq., V.P., in the chair.

Read the conclusion of Mr. Griffith's 'Analysis of *Rhizanthææ*,' and his 'Description of *Sapria*, a Himalayan genus related to *Rafflesia*.'

December 5.—E. Forster, Esq., V.P., in the chair.

Read, 'Observations on *Cytineæ*, and on the genus *Thottea* of Rottböll,' in continuation of Mr. Griffith's memoirs on Root-parasites.

December 19.—E. Forster, Esq., V.P., in the chair.

Mr. J. T. Lay, Her Majesty's Consul at Canton, presented a box of specimens of the *Keih-seen-me*, a species of *Alga* related to *Nostoc*, and eaten as a delicacy among the Chinese.

Read, a paper 'On *Carex saxatilis* (L.), and an allied species,' by Francis Boott, M.D., F.L.S. &c.

The allied species was found in 1832, in Glen Phee, Clova, by the party accompanying Dr. Graham on his annual botanical excursion to the Highlands, and was considered a form of *C. saxatilis*, L.; but Dr. Boott's attention having been called to it by Mr. W. Wilson, he has been led to regard it as a distinct species, and has named it *C. Grahami*. The following characters are given:—

Carex Grahami. Spikes 4—5, cylindrical, ferruginous; barren spikes 2 (rarely 1), slender, acute; fertile spikes 2—3, rather remote, stout, obtuse, the lower ones pedunculated, without sheaths, somewhat nodding: stigmas 2: perigynium oblong-ovate, inflated, nerved, somewhat erect, ferruginous (rarely straw-coloured), pale at the base, twice the length of the glume, beak bifurcate; glumes ovate, acute, brown, white at the apex, with a pale nerve.

Carex saxatilis. Spikes 2—3 blackish purple; barren spike 1 (rarely 2), cylindrical, pedunculated; fertile spikes 1—2, rounded or ovate, the lower one more or less pedunculated, bracteate, without a sheath, erect: stigmas 2—3: perigynium somewhat globose or ovate, with a notched beak, stipitate, spreading, nerveless, blackish purple, paler at the base, longer than the glume; glumes ovate, rather obtuse, blackish purple, white at the apex, nerve concolorous. *C. saxatilis*, L. *Fl. Lapp.* 259 (1737). *C. pulla*, Good. in *Linn. Trans.* iii. t. 14 (1795). Hab. Alpine districts of Scotland, Norway, Lapland, Sweden, Iceland, and the Faroe Isles.

The author critically examines the original authorities which show the *C. pulla* of Goodenough to be identical with *C. saxatilis*, L.; he also points out the origin of the confusion of the latter with *C. rigida*, Good. The characters distinguishing *C. Grahami* and *C. saxatilis* are then more minutely examined, and the author adds that he should not doubt their specific distinctness, but for the observations of Drejer, who, in his 'Revisio critica *Caricum Borealiæ*,' under the name of *C. pulla*, β . *fusca*, describes specimens from Iceland and Greenland closely agreeing with *C. Grahami*, except that no mention is made of the nerves of the perigynium, and remarks that the Greenland specimens are so very variable that they would scarcely be thought to be—

long to the same species. In the absence of precise information on the subject, Dr. Boott is inclined to refer to Presl's *C. physocarpa* (a native of Nootka Sound), both the larger Greenland specimens, and others from the Rocky Mountains described by him as *C. saxatilis* in Hooker's 'Flora Boreali-Americana.' The author, while he repeats that both himself and Mr. Wilson consider *C. Grahmi* entitled to rank as a species, yet leaves it to future observers to determine the value of the character given for it, and whether it is to be retained as distinct, referred back to *C. saxatilis* (L.), or transferred to *C. physocarpa* (Presl.)

Read also, 'An account of the Trees producing Myrrh and Frankincense, as found in those parts of the coast of the Red Sea and Indian Ocean whence those Gums were obtained in the first dawn of Commerce;' by Major W. C. Harris, late on an Embassy to the Court of Shoa, in southern Abyssinia.

BOTANICAL SOCIETY OF LONDON.

February 2, 1844.—A. Gerard, Esq., in the chair.

Various donations to the library and herbarium were announced, including 44 new species of mosses, collected at Swan River by Mr. James Drummond.

Read the commencement of a paper by Edwin Lees, Esq., F.L.S., being 'A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks.' The groups into which Mr. Lees unites the species have been already reported (Phytol. 655). The list of species will shortly be published in a new Catalogue of British Plants, now in the press for the Botanical Society of London.

The following explanations, in the words of the author, will sufficiently show that this arrangement has not been founded upon any brief or superficial study of his subject.

"Having previously designated the general groups into which the British Fruticose Rubi are divisible, I now proceed to attempt the more difficult task of describing the species in each group, and tracing them in succession in a synoptical form. In doing this, as I must necessarily propose some alterations, it is advisable that the candid and enquiring botanist should be informed as to the principles I have kept in view.

"In the first place, then, I have desired to make no innovation but what seemed imperatively required for correct elucidation, and have therefore made every effort to profit by the labours of preceding emi-

nent botanists, who have particularly studied the Rubi, as Sir J. E. Smith, Drs. Weihe and Nees ab Essenbeck, Mr. Borrer and Professor Lindley. But secondly, I have observed with the eye of an original explorer, tracing every form that appeared to me different, without reference to the ideas of other botanists. And thirdly, having observed the same plants in a living state for several successive years, I have collated and revised my original observations, sketched every apparent species, and compared them again and again with the figures, descriptions and named specimens of botanists of authority. Thus I have been enabled in a great degree to understand the forms to which particular names have been assigned, and to test their propriety by my own experience. I trust, therefore, that I shall not be considered guilty of assumption when I may differ from others, being only anxious for the nearest approximation to correctness.

“It is unnecessary for me to go into the question as to what constitutes a species in this genus; for, as I have before hinted, it is not unlikely that the forms in every *group* may be really only varieties, sporting from a normal form and into each other. But if Botany be a science of discrimination, it is at any rate convenient to name every remarkable continuing form as a species or sub-species, since otherwise minor variations can scarcely be distinguished, or must be placed in the same rank with more important deviations of structure. Indeed Nees Von Essenbeck, one of the authors of the elaborate ‘Rubi Germanici,’ has well remarked in a letter to the Rev. Mr. Leighton, in the Shropshire Flora, — ‘I am not of opinion that all the forms proposed by my friend Mr. Weihe *as species*, are to be considered as such, but in my opinion it is absolutely necessary to look for the greatest number of forms which present themselves in the genus, before attempting to judge of species and fixing their limits. I can scarcely tell which is most perplexing in the path of our science, whether, with Mr. Weihe, to distinguish as species every form of bramble that presents itself to our view, or, with Mr. Koch, to consider all as modifications of one only. In this case I do not doubt that these are matters purely of observation, and that the faithful observer of Nature will find that the truth really is between these two extremes.” *G.E.D.*

Errata.—Page 880, line 31, for *cautecaulis* read *caulicola*: line 32, for *Hystericum* read *Hysterium*.

Page 889, line 4, for *reticulate* read *parallel veins*: line 5, for *parallel veins* read *reticulate*.

THE PHYTOLOGIST.

No. XXXV.

APRIL, MDCCCXLIV.

PRICE 1s.

ART. CCV. — *Notes on Botanical Classification.*

By EDWARD FORSTER, Esq., V.P.L.S., &c.

Woodford, March 13, 1844.

SIR,

On reading the ‘Remarks on Botanical Classification,’ by Mr. Thomas Edmonston, jun. (Phytol. 759), in which there is so much good sense and clear understanding, I felt inclined to express my gratification; but on reflection it appeared to me that his observations wanted no additional strength. The case is now altered by the Article 199, in No. 34, called a Reply, (Phytol. 885), which arouses an old botanist to stand forth in defence of one who has so well pointed out the use of a simple artificial scheme. It may not be amiss first to remark that a misunderstanding has long been prevalent with regard to the words artificial and natural, as applied to botanical systems; the original meaning was, that in one, the *evident affinity* is not so apparent as in the other; it surely cannot be denied that the *sexual* system of Linnæus is really as natural as those of Ray, Jussieu, DeCandolle &c., which are founded on other characters. I fear Linnæus himself was the author of the misnomer.

On looking carefully at the first paragraph in p. 886, I am well convinced that Mr. Edmonston and Dr. Ayres differ only in words, the latter using species in a sense not usual. He begins by entirely dissenting from Mr. Edmonston’s assertion that “Nature creates species;”* then follows, “for it is easy to perceive that the term species is applied to an assemblage of individuals, which, from their great resemblance to each other and their capability of propagating their kind, are called species.” A little further on we have, “I contend that Nature simply created individuals capable of propagating their kind. And if we trust the Mosaic account of the creation, we shall see reason to believe that plants as well as animals were individually created.” This is all we want, — our term species meaning the progeny of the first-created individuals. Certainly, the capability of thus propagating their kind is a very strong presumptive proof that they are so. The passage

* A misquotation: the passage is, “Nature creates only species.”

goes on, "It is evident that the term species applies to one of the primary inductions from a comparison of individuals; not that a species has any absolute existence, but is merely the conception or expression of the points of resemblance of a certain number of individuals bearing the greatest resemblance to each other. Another argument against Mr. Edmonston's view is the fact of the existence of varieties; a still lower induction from individuals." Whatever is meant by this scholastic induction, it would rather seem to contradict the writer's own words quoted above, but I am doubtful if I understand it. The fact of the existence of varieties is surely no argument against Mr. Edmonston's view.

Again, "The quotation from Dr. Lindley's *Key to Botany* is not sufficiently ample, Mr. Edmonston should have added the next paragraph." "What we call the characters of plants are merely the signs by which we judge of affinity, and all the groups into which plants are thrown, are in *one* sense artificial, inasmuch as Nature recognizes no such groups. Nevertheless, consisting in all cases of species very closely allied to each other, they are in another sense natural.' The addition of the last sentence very much alters our notion of Dr. Lindley's expression; for now he implies that Nature has not created species, orders, genera, or other groups as such." This quotation from Lindley surely very much confirms Mr. Edmonston's argument. It is quite clear that Lindley uses the word species exactly as I have endeavoured to show is the true meaning. If the passage be read with attention, it will be seen that he refers to groups of species, and by no means implies that Nature has *not* created species, which word is introduced by Dr. Ayres in his inference; Lindley's meaning being that the arrangement of species into genera is the work of man, founded on natural affinities.

It might perhaps have been rather more accurate if Mr. Edmonston had said, Nature created species, instead of using the present tense; by Nature no man in his senses can suppose that he means any other than Divine power.

Having, I trust, shown that Mr. Edmonston and Dr. Ayres, both of whom are unknown to me, except by their writings in 'The *Phytologist*' do not differ except in the use of words, I am led to lament, that *fashionable* botanists of the present day are in the constant habit of using words in a new sense. We can scarcely meet one, in whose conversation the word *form* is not introduced by hook or by crook, for species, genus, group or anything else. Our language does not want it, but for variety it is not improper. I am ready to allow that were it not for the indecent want of reverence in attributing to Na-

ture, the working by *carpenter's rule*, the term normal form is quite as melodious as *type of the species* hitherto adopted for the usual and regular habit or *form* of a plant from which the specific distinctive characters ought to be taken ; and is equally inaccurate. Normal as applied by legislators to *model* prisons and schools, has Latin authority ; in the case of plants model will hardly do.

I hope the above explanation of the word species may tend to check young men from talking of "making species," or boasting of "exalting varieties to the rank of species," neither of which is in the power of mortal man. I will now conclude with saying, far be it from the most ardent admirers of the great Linnæus, or the zealous defenders of his sexual, commonly called artificial system, to disparage any others, founded on analogy ; much less to discourage the beautiful study of Physiology, without the knowledge of which no man can become a thoroughly scientific botanist.

I am, Sir.

Yours sincerely,

EDWARD FORSTER.

To the Editor of 'The Phytologist.'

ART. CCVII. — *List of a few of the Botanical Rarities collected in Scotland in 1843.* By WILLIAM GARDINER, Esq.

LYCHNIS viscaria, L. Gathered in a new station, in July, namely, wooded banks of the Ericht near Craighall, about two miles above Blairgowrie, Perthshire. Only two or three specimens in flower.

Lychnis alpina, L. This very interesting and rare species I collected on the summit of Culrannoch, one of the Clova mountains, about 3200 feet high, in the midst of a terrific hail-storm in July. It grew on wet stony ground, associated with *Armeria maritima*, β . *alpina*.

Linnæa borealis, Gronov. Plentiful among the mossy rocks at the base of Craig Maid, in Glen Dole, Clova, July 28, bearing abundantly its graceful snowy and rose-tinted blossoms, loading the summer air with their rich perfume.

Sonchus alpinus, L. This was culled from two stations in Glen Dole in July and August, carefully leaving the roots, and observed in several other places about the rocks of Craig Maid but inaccessible.

Erigeron alpinus, L. In Caulochen and in Glen Dole, high on the rocks, but in small quantity.

Moneses grandiflora, Salisb. Moist shady woods, Scone, Perthshire, flowering in June, but very deficient in size this season.

Pyrola rotundifolia, L. On the rocks of Craig Maid, Glen Dole, at a good elevation, associated with *P. secunda*, but neither of them in plenty.

Asperugo procumbens, L. Found in June on a bank near Aucmithie, coast of Forfarshire.

Veronica alpina, L. This was found abundantly in Caulochenglen in July, and more sparingly in Glen Dole, both in flower and fruit. It loves to grow about the sides of rills, and on the moist rocky banks of old watercourses.

Veronica saxatilis, L. This brilliant-flowered species adorned the rocks of Caulochen in great profusion, and occurred also on the rocks in Glen Dole, and in the *corrie* of Ben Red.

Salix ambigua, Ehrh., *S. arenaria*, L., *S. hirta*, Sm., *S. nigricans*, Sm., *S. Forsteriana*, Sm., *S. Davalliana*, Sm., and *S. lanata*, L., were found in Glen Dole and Glen Clova; *S. petræa*, And., *S. Myrsinites*, L., *S. procumbens*, Forbes, and *S. lanata*, L., in Caulochen.

Scheuchzeria palustris, L. In a marsh near Methven, Perthshire.

Potamogeton zosteræfolius, Schum. Rather plentiful in Rescobie-lake, Forfarshire, bearing flower-spikes in August.

Juncus Balticus, Willd. Very abundant on the sands of Barrie.

Alopecurus alpinus, Sm. This occurred in various localities about Clova, but in greatest quantity and in finest condition on the wet rocks about the waterfalls of Craig Wharral, above the loch.

Phleum alpinum, L. Was gathered on the moist grassy banks of the Feula-burn, above the falls; upon the bank of the Glashie-burn, which runs into the glen of Caness; and very fine about a small waterfall not far from Loch Brandy, called "the *wash* of the *corrie* of Clova."

Carex aquatilis, Wahl.? Abundant on the moist banks of Feula-burn, Clova, and near the head of Caness, rarely attaining the height of a foot, but growing on the margin of the Esk in Glen Clova, to more than double that size.

Carex rariflora, Sm. For this rare species I discovered a new station in the Clova district, namely a bog at the head of Caness, where it occurred in fully greater plenty than in the bog at the head of Glen Dole.

Equisetum variegatum, Schleich. Sands of Barrie, in fruit from April to October.

Splachnum vasculosum, Hedw. On the marshy banks of Feula-burn above, the falls, this moss occurred in fine fructification in July; and in August I detected it in a similar spot on the banks of Loch

Brandy stream, also bearing capsules, rendered conspicuous by their large dark brown apophyses, nestling among the broad and ample foliage.

Weissia nigrita, Hedw. On the sands of Barrie, bearing fruit in September. I also found it with capsules in January, 1844, as well as *Didymodon inclinatus*, Sm., with which it grows associated.

Grimmia Doniana, Sm. Growing in small tufts, principally in the hollows of rocks and stones, on the Sidlaw-hills, near their summits; plentifully in fruit in April.

Didymodon Bruntoni, Arn. Rocks on the Sidlaw-hills, and about the Reeky Linn, in April and May.

Dicranum polycarpon, Ehrh. Plentiful on rocks in Glen Dole and on Carlowrie mountain, Clova.

Dicranum fulvellum, Sm. On moist rocks in Glen Dole, but rare.

Orthotrichum Drummondii, Hedw. Abundant on the few scattered old trees in Glen Dole.

Bryum trichodes, L. Among the rocks of Caulochen, and more abundantly in moist places on the sands of Barrie. Capsules mature in the latter place in June, in the former in July.

Bartramia gracilis, Flörke. This was gathered in Glen Dole, Caulochen, and Craighall, in July, and bearing profusion of capsules, although these are esteemed rare.

Buxbaumia aphylla, L. On the northern declivity of one of the Sidlaw-hills, where I have gathered it for several successive seasons. It grows in small earthy hollows among the heath, probably where snow has lain late in the spring.

Hypnum molle, Dicks. In Loch Brandy stream, and also in a rivulet in Glen Dole.

Hypnum Crista-castrensis, L. This grows abundantly among the loose rocks at the base of Craig Maid, Glen Dole, a short distance below the falls of the White-water, but only a specimen or two were found with mature capsules, although there appeared to be plenty in a young state.

Jungermannia Tylori, Hook. Plentiful on wet rocks in Glen Dole, along with *J. julacea*.

Jungermannia setiformis, Ehrh. This fine species I collected in Glen Dole, Caulochen, Ben Red &c., growing upon the rocks in broad tufts or cushions.

Cetraria juniperina, Ach. A single specimen found in Deerhill wood, about eight miles north from Dundee, in April.

Cetraria sepincola, Ach. This is abundant in the same wood, in-

vesting trunks and branches of fir-trees, along with *C. glauca*, but although apothecia are frequent on the latter, only one specimen of the former has as yet been found possessed of them. *C. Islandica* is scattered plentifully over all the Clova mountains, and occurs sparingly on the Sidlaw-hills. *C. nivalis*, in the Clova district, is confined to the summit of the Bassies.

Usnea barbata, Ach. Several specimens of this were found with apothecia in the Deerhill wood.

Alectoria jubata, Ach. A specimen or two of this were gathered in the same wood in April, with apothecia, which are different from what has been previously figured as such, and which Sir W. J. Hooker and Mr. Borrer pronounce to be the *true fructification*. As this lichen is very abundant in Deerhill wood, I have good hopes of being able to supply each subscriber to my botanical distribution of 1844, with a fructified specimen.

WILLIAM GARDINER.

Dundee, February 12, 1844.

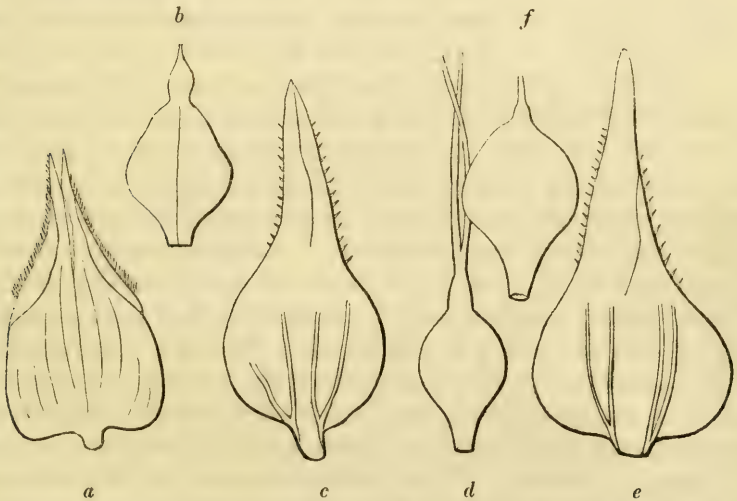
ART. CCVII. — *Notes on Carex teretiuscula, C. paradoxa, C. paniculata, and Mr. Gibson's C. pseudo-paradoxa.* By GEORGE LUXFORD, A.L.S., &c.

(Concluded from p. 897).

The three recognized species of *Carex*, the names of which stand at the head of these notes, fully exemplify the absolute necessity of studying numerous specimens of plants, from different localities, before we can arrive at anything like a correct estimate of the extent of their variations in habit, or discover the permanent character peculiar to the species to which they respectively belong.* These three species, together with *Carex vulpina* and Mr. Gibson's *C. pseudo-paradoxa*, form a small but natural group of British Carices, which agree generally in their compound inflorescence, but more particularly in their perigynia being cordate at the base and stipitate, with the style more or less enlarged in the lower part. The inflorescence of *Carex*

* By the word *permanent*, as used above, must not be understood an *unvarying* adherence to size, form, colour or proportions, but such a degree of general resemblance among themselves, often more readily seen than described, as will enable the student to refer the objects of his investigation to a certain determinate standard, usually denominated the normal form or type of the species. The limits of possible variation from this standard are frequently very wide. A reference to our domestic animals, and our cultivated plants and fruits, will explain my meaning.

vulpina is tolerably constant; but in *C. paniculata* it is so exceedingly variable, that the only part on which we can depend as affording a permanent specific character is the fruit.* The fruit indeed is now generally referred to by botanists in their characters and descriptions of the numerous species of *Carex*, but its value will be peculiarly apparent in a plant, the habit of which is so liable to variation as that of *C. paniculata*. No dependance can be placed on the inflorescence, for in my specimens this varies from a nearly simple elongated spike, through different gradations, up to a regular panicle with branches between three and four inches long — a variation pointed out by Mr. Babington and other botanists. A good character would seem to be afforded by the tendency of the root to form large tufts; but as this appears also to be the case with the root of the new *Carex paradoxa*, as well as, although in a less degree, with that of *C. teretiuscula*; we are obliged, especially for home study, to have recourse to the fruit for a character, and a most satisfactory one is afforded by it. Figures *a.* and *b.* are copied from Leighton's 'Flora of Shropshire,' and well

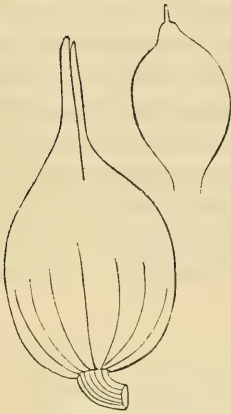


a, b. Perigynium and nut of *Carex paniculata*. *c, d.* The same parts of *C. teretiuscula*. *e, f.* The same of *C. pseudo-paradoxa*, *Gibbs*.

express the usual form of the perigynium and nut of *Carex paniculata*: the former with its bidentate beak and somewhat serrated densely fringed wings; and the latter with its ovate outline and the enlarged

* It may perhaps prevent misunderstanding, if I here repeat that I use the term *fruit* for the perigynium and included nut.

base of its style. The following is Mr. Moore's description of the fruit of this species, as contrasted with that of *C. paradoxa*, in the 'London Journal of Botany' for March, 1843. "Fruit *plano-convex*, between deltoid and triangular, with a broad serrated margin extending from the middle to the bidentate beak, broad and subcordate at the base, stipitate, striated on both surfaces; striæ scarcely extending down the slender stipitate point of attachment."



Perigynium and nut of *C. paradoxa*.

The above remarks on the variable nature of the inflorescence of *Carex paniculata*, are equally applicable to that of *C. paradoxa*. The specimens kindly sent me by Mr. Spruce are truly paniced, the branches of the panicle varying in length from a quarter of an inch to about an inch and a half. A specimen from Westmeath, collected by Mr. D. Moore, and kindly forwarded by Mr. W. Wilson, has the branches of the panicle very short, with its spikelets densely aggregated; and in other specimens from the Irish locality, also from Mr. D. Moore, in the possession of the Botanical Society of London, the panicle is reduced to a compound spike, with the spikelets sessile upon the common axis.

The panicle of this species, when in fruit, has a peculiarly *neat* appearance, reminding one of that of *Juncus cœnosus*; in its stem and foliage it resembles *Carex teretiuscula*. Being intermediate between *C. paniculata* and *C. teretiuscula*, as mentioned by Sir W. J. Hooker, and nearly allied to both species, it is desirable to find some permanent character whereby it may be distinguished from them; this character is here also admirably furnished by the fruit, which is perfectly identical in all the specimens above mentioned, agreeing, except in one particular, with Mr. Moore's description quoted below from the 'London Journal of Botany.' "Fruit ovate-subrotund, *gibbous on the inner face*, with a long slender beak, slightly cloven, and edged with a narrow serrulated margin,* base gradually† lengthened out into a

* The serrulated margin of the beak could not be shown in the figure, from the position of the perigynium, which is represented as lying on its side.

† The base of the perigynium can scarcely be said to be *gradually* lengthened out into the stipes. In this respect, as mentioned by Mr. Wilson, Schkuhr's figure is unsatisfactory, since it represents the base of the perigynium as tapering down into the stipes, instead of cordate, as it really is.

strong stipitate point of attachment, which is a continuation of the convex surface, with strong nerves all round, which extend down the stipe." The figure of the perigynium given above, is a profile view from a sketch by Mr. Wilson. The sketch was made from a fruit of Mr. Moore's Irish plant in the possession of Mr. Wilson.

The difference in the outline of the nuts of the two species is sufficiently shown by the figures; there is considerable resemblance between the perigynia of the two when viewed in front, the most obvious difference consisting in the broadly winged and cloven beak of the one and the serrulated emarginate beak of the other. When however the perigynia are viewed in profile, a most striking dissimilarity is observable: in *C. paradoxa* the lower part being inflated with the inner face gibbous, while in *C. paniculata* the inner face is nearly flat. It will be seen that the nut scarcely differs in outline from that of *C. teretiuscula*. For an account of the discovery of this beautiful *Carex* in Yorkshire, and a notice of its mode of growth in that locality, I beg to refer to Mr. Spruce's note, (*Phytol.* 842).

Seeing then that these two species are so subject to variation in the character of their inflorescence, we surely cannot feel surprized if we find that their natural ally, *C. teretiuscula*, is also variable in this respect, as indeed it is, although in a less degree. Some specimens now before me have their spikelets densely aggregated into a short roundish head; in others the compound spike is more or less elongated, even to above an inch in length: but amid all these variations in the inflorescence, this species is well distinguished from its ally, *C. paniculata*, both by the fruit and the form of the stem, which, in the latter, has three acute angles with the interstices flat, while the angles of the stem in *C. teretiuscula* are obtuse, with a projecting line in the centre of two of the sides: thus a transverse section of the one presents an acutely triangular outline, while in the other the outline is roundish. In the form of the stem and general habit *C. paradoxa* bears a considerable resemblance to *C. teretiuscula*, but the two are strikingly distinguished by the very different forms of their fruit. And here perhaps it may not be out of place to mention that while they retain their general specific characters, I have found both the perigynium and nut of *C. teretiuscula* to be subject to greater variations of form and outline than those of either of the two species named above. These variations I am inclined to think may be attributed to the fruit being examined in different stages of maturity. The nut, in what is generally considered its normal form, has a turbinate outline, as represented in Mr. Leighton's figure; but I have as often found it to

correspond with Mr. Wilson's figure (*d*, p. 919), and even with greater breadth in proportion to its length than that figure exhibits. There is, however, one part in which I have never observed any variation; and I have taken great pains to verify my observations on this point, because they are at variance with the figure given by Mr. Leighton, and the descriptions of most botanists; I allude to the enlarged base of the style, which is quite as constant, though not so conspicuous, in this species as in either *C. vulpina* or *C. paniculata*; but there is no constriction in the lower part of the enlargement, as there is in the two species last mentioned. In stating that the base of the style of *C. teretiuscula* is always enlarged, I am happy to be supported by the valuable testimony of Mr. Wilson, in whose figure *d* is shown the style with its enlarged base. Schkuhr also has accurately figured the nut of this species (*l*, in tab. D, 19), both in its outline and the swollen base of the style.

The figure of the perigynium of *C. teretiuscula* in Leighton's 'Flora of Shropshire' represents that part more cordate at the base than Mr. Wilson's sketch, (*c*. Phytol. 919). In this respect also I have observed considerable variations from what may be looked upon as the normal form, which variations, as I have before stated, I am inclined to attribute to a difference in the state of maturity. The number of ribs on the outer side is also variable in a certain degree. The beak is scarcely notched, never deeply cloven, and its marginal wings are narrow, green and serrulate.

With respect to the root of this species there appears to be a slight diversity of opinion among botanists. For while Smith and Leighton agree in calling the root "slightly creeping," and the former author says it is "not densely tufted," and the latter that it is "slightly creeping into scattered simple not dense tufts,"—Mr. Babington describes it as "forming scattered simple tufts, not truly creeping." From this it is, I think, evident that the root, like the inflorescence, is liable to be modified by local and other circumstances; and it appears to me not at all wonderful that these circumstances should also occasionally produce such changes in the habit and general appearance of this species, as well as of others belonging to the same group, as would cause considerable perplexity to a botanist, and lead him to conclude that he had found something new on seeing the plant for the first time in its modified form. Such circumstances, I doubt not, have operated on the plant named *Carex pseudo-paradoxa* by Mr. Gibson, and caused the deviations from what I believe to be the normal form, that have led that botanist to describe the plant as a new species. The

peculiarities in the locality and manner of growth of this plant have already been explained by Dr. Wood, (Phytol. 809); and it appears from the evidence before me, that the root has been acted on in that locality more than any other part of the plant. For in my numerous specimens from that spot I find the inflorescence undergoing precisely the same changes as I have before stated to be common in the true *C. teretiuscula*. The perigynium is equally variable in its form and markings with that of *C. teretiuscula*, — the number of ribs varying from four to six or seven, and the breadth at the base being more or less great in proportion to its length; but the perigynia of the two agree precisely in their general outline, their cordate base, and their scarcely notched beak with its serrulated margins. Fig. *e* (p. 919) represents a perigynium of the disputed plant; it is the broadest form I have met with, but there are regular gradations from it to the narrow form figured at *c*, and the same form I have not unfrequently met with in the normal state of the species. The nut, too (*f*), so far as I can see, is perfectly identical in the two plants. There are the same variations in outline, and, what is of perhaps greater importance, the base of the style in the two plants is enlarged in precisely the same manner. Figs. *d* and *f* show almost the extreme forms, and these, like the perigynia, I find to be connected by very regular grades.

In addition to the above characters I may remark that the culms, foliage, bracts and other parts, together with the general habit of the two plants, are all strongly indicative of the closest affinity, nay, even of specific identity.

In the 'London Catalogue of British Plants,' by the Botanical Society, published since the above notes were written, the disputed *Carex* stands as var. *b. pseudo-paradoxa*, under *C. teretiuscula*. This is doubtless its true place, if allowed to retain an existence separate from the normal form: for as a distinct species it certainly appears to have no claim to a station in our Flora.

Before I conclude I may perhaps be allowed to point out the very slight resemblance between the fruit of this plant and that of *Carex paniculata* (Phytol. 778, &c.) The comparison was certainly rather unfortunate, except so far as relates to the sectional likeness between the two; for a comparison of fig. *f* with *b*, will at once show a marvellous difference in the outline of the nut of *Carex paniculata* and that of the disputed plant, a difference, indeed, as great as that existing between the two perigynia represented by *a* and *c*. The discrepancies are so striking, that, coupled as they are with other marks of distinction equally if not still more obvious, we cannot but wonder that

the one should be said to have the fruit as in the other, as much as that the normal form of *C. teretiuscula* should ever have been considered a mere variety of the truly distinct *C. paniculata*.

In conclusion I beg to return my best thanks to Mr. Wilson for the loan of his sketches and dissections; as well as to those gentlemen who have kindly furnished me with the numerous and beautiful specimens which have been used in my investigations, and without which my researches could not have been carried out. As my only object in undertaking the task was the hope of eliciting truth, I shall be happy to see in the pages of 'The Phytologist' a record of the results of similar researches prosecuted by other enquirers, and that, too, whether such results may tend to establish or overthrow my present conviction that the new plant is merely a variety of the species usually known as *C. teretiuscula*, *Good*.

GEO. LUXFORD.

2, Ebenezer Row, Kennington Lane,
February, 1844.

ART. CCVIII.—*Note on the supposed identity of Carex fulva*, Goodenough, *with C. speirostachya*, Wahlenberg.* By FRANCIS BOOTT, Esq., M.D., F.L.S., &c.

I HAVE been looking at *Carex fulva* of Goodenough, with a view to the opinions of Sir James Smith and the continental botanists, who make two species out of the plant originally described by Goodenough in the second volume of the Linnean Transactions, 1792: viz. —

1. *C. fulva*, *Good.*, and
2. *C. speirostachya*, *Wahl.*
C. Hornschuchiana, *Hoppe*, &c.
C. Hosteana, *Dec.* &c.

Host, Wahlenberg, Swartz, Smith, Hoppe, Reichenbach, Koch, Sprengel, Degland, Decandolle, Brebisson, Boreau, Desporte, Tuckerman, Don, Macreight, admit two species.

Goodenough, Schkuhr, Willdenow, Gaudin and Mutel notice only *C. fulva*.

Cosson and Germain, Delastre, and Sir W. J. Hooker make the one a variety of the other.

Kunth quotes Hoppe's plant, but was not acquainted with it.

* Communicated by Edw. Forster, Esq., V.P.L.S., and published with Dr. Boott's permission. We trust our readers will endeavour to aid Dr. Boott in this enquiry by collecting and transmitting to him any specimens they may meet with.—*Ed.*

1. *C. fulva*, Good. Linn. Trans. ii. 177, t. 20, f. 6 : 1792. Wahl. Act. Holm. : 1803. Smith, Fl. Brit. iii. 991 : 1804. Willd. Sp. Pl. iv. 270 : 1805. Wahl. Fl. Suec. : 1806. Schkuhr, Riedgr. T. 67, *figuræ 2 dext.* Hoppe, Car. Ger. t. 41. Smith, Eng. Fl. iv. 107 : 1828. Reichenbach, Fl. Ger. ex. i. 65 : 1830. Mutel, Fl. Dauphiné : 1830. Sprengel, Syst. Veg. iii. 823 : 1826. Brebisson, Fl. Normandie : 1836. Koch, Syn. Fl. Germ. 765 : 1837. Kunth, Cyp. 449. Desportes, Fl. de la Sarthe &c. 1838. Boreau, Fl. du Centre de la France : 1840. Macreight, Man. Br. Bot.

Syn. — *C. distans*, Host. i. t. 77 ; *fide Reich.* *C. trigona*, Allioni, t. 89, fig. 4 ; *fide Cosson &c.* *C. xanthocarpa*, Degland, apud Loisel. ; *fide Cosson &c.* *C. Hornschuchiana*, β . *xanthocarpa*, Cosson et Germain, Obs. sur quelq. Pl. de Paris, p. 20 ; 1840. Delastre, Fl. du Dep. de la Vienne : 1842.

2. *C. speirostachya*, Wahl. Act. Holm. 1803, (sub *C. binervis*). Swartz in Herb. Smith. Smith, Eng. Fl. iv. 98 : 1828. Tuckerman, Enum. Meth. Car. 13 : 1843. Eng. Bot. Don, t. Macreight, Man. Br. Bot.

Syn. — *C. binervis*, Wahl. Act. Holm. 1803 : Fl. Suec. 1826 : (*non Smith*). Swartz, Herb. Winch. (*non Sm.*) *C. distans*, Fl. Dan. t. 1049 ; *fide Smith*, *Cosson (negat Reich.)* *C. Hosteana*, Dec. Cat., Kunth, Spreng. Reich. (*fide Hoppe, MS.*) *C. fulva*, Host, iv. t. 65, *fide Hoppe*. Dec. *fide Boreau*. Schk. Riedgr. T. 67, *fig. sinistr.* Duby, Bot. Gall. 495, *fide Cosson &c.* *C. fulva*, β . Hook. Br. Fl. 429 : 1842. *C. Hornschuchiana*, Hoppe, Fl. 1824 : Car. Ger. t. 40. Reich. ; Koch ; Brebisson ; Boreau ; Desportes ; Delastre ; Cosson et Germain ; *omn. loc. cit.*

β . *flavescens*, Desportes, loc. cit. Fruct? squamisque flavescentibus ; v. s. Herb. Winch e cl. Swartz.

Wahlenberg's name of *C. speirostachya* has the priority over that of Decandolle and Hoppe. A Swedish specimen so named by Swartz is in Smith's herbarium, and it was adopted in the 'English Flora.' Wahlenberg, in the 'Act. Holm.' and the 'Flora Suecica,' mistook the plant for *C. binervis*, *Smith*, and a Swedish specimen from Swartz so named is in Mr. Winch's herbarium.

The question is, whether the two plants are to be considered as species or varieties. It will be seen by the authorities quoted, that by far the most of them make the two specifically distinct. Cosson and Germain, from the circumstance of *C. Hornschuchiana* being the most common form, take that as the type, and reduce the *C. fulva*, *Good.*, to the var. β ., and they are followed by Delastre.

I do not find any British specimens of *C. fulva* in Smith's herbarium. On the sheet holding his specimens marked "*C. fulva*," there are *three from Sweden, from Swartz*, which answer to the description and figure of Goodenough ; and with these are four from "*Prof. Beuttie, Aberdeen, 1799*," — and three others from "*Mackay, moist moorish ground, Scotland, 1796*," all of which I think are clearly referrible to *C. speirostachya*, having the mouth of the perigynium

deeply cleft and membranous at the margin, one of the chief characters which Smith insists upon for that species, but which Hoppe neither expresses in his figure nor notices in his description, and it is equally passed over by Koch and Reichenbach, and indeed by all the authorities; though Wahlenberg, as early as 1803, said "*ore bilobohyalino*."

The essential difference of *C. speirostachya* is a stoloniferous root, a more slender smooth culm, narrower and shorter leaves and bracts (the last never reaching to the male spike), female spikes often three, the lower one subcylindrical (and sometimes compound), perigynium greenish, with a narrower, often smooth, cylindrical rostrum, the orifice of which is two-lobed, and membranous at the margins, the scales dark brown.

C. fulva has a cæspitose root, grows in denser tufts, so as, Hoppe says, to be easily distinguished at a distance, the leaves of a bright green and with the bracts broader and longer (the last reaching to the male spike), the female spikes commonly two and ovate; the culm stouter, with three acute rough angles; perigynium yellowish with a broader conical rougher beak, which is bifid at the orifice, the scales of a cinnamon colour.

It would not be difficult to select specimens of each, having more or less of these characters well marked, but I think there are intermediate forms which it would be embarrassing to determine upon. Cosson and Germain deny that the root of *C. Hornschuchiana* is stoloniferous. Smith describes the root of *C. fulva* and of *C. speirostachya* as creeping. The roughness and smoothness of the culms vary. The orifice of the perigynium in the specimens of *C. fulva* of Swartz from Sweden, certainly is slightly membranous at the margin, and this character perhaps more or less depends on age. The colour of the perigynium in Swiss specimens of *C. speirostachya* from Davall, in Smith's herbarium, is yellowish, and Desportes has a variety, *β. flavescens*, with "yellowish perigynium and scales," an example of which I observe in Winch's herbarium from Swartz, sent as *C. speirostachya*.

I suspect the stouter and rougher culm, the broader and longer bracts and the rougher rostrum of *C. fulva*, would be found, in a large suite of specimens, to be unsatisfactory characters. I find in *C. speirostachya* the number of female spikes to vary from one to three, and in Davall's Swiss specimens, in one of those from Swartz from Sweden in Smith's herbarium, and in one from Germany from Baron Römer in my own herbarium, they are from five to six, the upper ones crowd-

ed near the male spike; while some are barren at the base and others at top.

C. speirostachya would seem to be more common in this country than *C. fulva*. The only habitats for the last that I know of, are *Caton, near Shrewsbury*, quoted by Goodenough. *Kent*, sent to me by Mr. Peete; and the *Northern Mountains of Ireland*, found by Macreight and given to Mr. Forster. I cannot satisfactorily quote other places. *C. speirostachya* I have from Scotland, Wales, Yorkshire and Somersetshire. I shall endeavour to interest British botanists in the subject, to fix the localities of the two plants, and to collect specimens with the *roots and mature fruit*, that the question may be more satisfactorily settled as to specific difference between them.

Mr. Babington, if I mistake not, leaves the question of specific difference undetermined: his book is not by me. F. BOOTT.

Gower Street, March 23, 1843.

[Mr. Babington includes *Carex speirostachya* under *C. fulva*: it may not be amiss to give here his characters.—*Ed.*]

“*C. fulva* (Good.); fertile spikes oblong-oval distant with exserted stalks, *bracts* foliaceous with *elongated sheaths*, glumes acute not mucronate, fr. ovate triquetrous ribbed smooth with a *straight rough-edged bifid beak*, *nut* obovate trigonous nearly smooth, *st. acutely triangular rough-edged*.—*E. B.* 1295.—*St.* about a foot high. *Barren spike spindleshaped, acute*: glumes obtuse. Lowest bract frequently, but not always, reaching up to the barren spike. Root sometimes creeping.—*β. hornschiuchiana*; fertile spikes oblong on longer stalks more distant, fr. more inflated and more strongly ribbed, *st. bluntly triangular smooth* except sometimes near the top, lowest bract longer than its own spike. *C. speirostachya* Sm. *E. B. S.* 2770. *C. hornschiuchiana* H. b. 40., *Koch, Kunth*, &c. Probably a distinct species. — Boggy places. *β.* Peaty bogs chiefly on mountains. P. VI.”—*Man. Brit. Bot.* 343.

ART. CCIX. — Notice of ‘*The London Journal of Botany*,’ No. 27, March, 1844. By SIR W. J. HOOKER, K.H., LL.D., F.R.A. and L.S., Vice-President of the Linnean Society, and Director of the Royal Botanical Gardens of Kew. London: H. Baillière, 219, Regent Street.

IN the present number of this Journal there is much interesting matter under the head of “Botanical Information;” but as this for the most part consists of notices of new works on Botany, we can do little more than give a sort of running summary of the article.

IN Mr. Fielding’s ‘*Sertum Plantarum*’ a work similar to Hooker’s ‘*Icones Plantarum*’ in its plan, but containing different subjects, will

be given lithographic figures of "entirely new or very little known plants" contained in the author's herbarium. He will be assisted in the work by Mr. Gardner, Superintendent of the Royal Botanic Gardens, Calcutta. The first fasciculus is published.

Another work, similar in character, is the '*Sertum Exoticum*' of Miguel, author of '*Observationes de Piperaceis et Melastomaceis*.'

The reprint, and translation, of Johnson's '*Iter Plantarum*,' has already been announced in our pages (Phytol. 908). The original of this work is exceedingly rare, the copy in the Banksian library now in the British Museum appearing to be the only one in existence. The new edition will be so printed that the English translation will occupy the page opposite the Latin text. The tract contains a journal of probably the earliest botanical excursion undertaken by the Apothecaries' Company. The following localities, among others, were visited by the author: — Erith, Dartford, Gravesend, Rochester, Sheppey, Faversham, Canterbury, Margate, Sandwich and Deal, in Kent: and in Middlesex, Kentish-town, Highgate and Hampstead, including Hampstead-heath and Caen-wood. By way of comparison of the present with the former botanical state of this district, Mr. Irving's List of Hampstead-heath Plants will be appended: facsimiles of the curious illustrations will also be given.

The eighth volume of DeCandolle's '*Prodromus Syst. Nat. Regni Vegetabilis*' was announced for last November, but had not been received when this No. of the Journal went to press. This great work has been continued by the son of the lamented author, and the assistance of some of the most eminent botanists of the day has been secured. The eighth volume includes the following families: — Lenticularinæ, Primulaceæ, Myrsinæ, Ægiceraceæ, Theophrasteæ, Sapotaceæ, Ebenaceæ, Styraceæ, Oleaceæ, Jasmineæ, Apocynæ, and Asclepiadeæ.

In Walper's '*Repertorium Botanices Systematicæ*' the arrangement of Decandolle's *Prodromus* has been followed, and it may be considered a Supplement to that work. The second volume concludes with the Monotropeæ.

Three supplementary numbers to Endlicher's '*Genera Plantarum*' have appeared; they contain new genera, as well as corrections of those previously published: the third number includes an arrangement of the Algæ, with their generic characters, a catalogue of species and a list of algological writers.

Schnizlein's '*Iconographia Familiarum Naturalium Regni Vegetabilis*' may be considered as supplying the place of Endlicher's '*Ico-*

nographia Generum Plantarum,' which was discontinued at the end of the first volume. Two parts are out: "the cryptogamic plates are very beautiful."

Of Jaubert and Spach's 'Illustrationes Plantarum Orientalium' eight livraisons are published.

Lindenberg's 'Monographia Hepaticarum Generis Plagiochilæ' is a work illustrative of a group of Jungermanniæ having for its type our *J. asplenioides*. The hair-splitting system seems to have been carried to a great length; for the Editor observes that "the slightest change in the form of the leaf, the presence or absence or size of a tooth, direction of the foliage and of the branches, the presence or absence of surculi, &c. &c., all and each are considered tokens of specific distinction, without taking into account the influence of soil, exposure and climate;" and by these means the number of species of *Plagiochila* is increased to ninety-six! The work is however spoken of in terms of praise for the beauty of its figures and the manner in which the characters and descriptions are drawn up.

The first volume of Grisebach's 'Spicilegium Floræ Rumelicæ et Bithynicæ' is spoken of as "a most valuable addition to our knowledge of Eastern Botany." A letter from the author explains the plan and object of the work.

The first volume of Ledebour's 'Flora Rossica' is out and extends to the end of the Leguminosæ.

A notice is given of the plates to the botanical part of the antarctic expedition of the *Astrolabe* and the *Zélée*, in 1837—40, under Admiral d'Urville. They are highly spoken of.

Künze's 'Farnkräuter' is a supplement to Schkuhr's admirable work bearing the same title. Six fasciculi are published, and contain sixty coloured plates of new Ferns, or such as were not figured by Schkuhr. Künze's 'Riedgraser' is in like manner a supplement to Schkuhr's work on the Carices. Three parts contain thirty plates, with specific characters and descriptions.

Mr. Bateman's 'Orchidaceæ of Guatemala and Mexico,' and Dr. Lindley's 'Sertum Orchidaceum,' are deservedly spoken of in terms of high commendation.

The first No. of Mr. Bentham's 'Botany of the Voyage of H. M. S. *Sulphur*,' has just appeared: it contains ten plates of new species, from drawings on stone by Miss Drake. It "extends as far as Paronychiaceæ of the Californian plants;" and six quarterly parts will probably complete the Botany.

Under the notice of the first part of Sir W. J. Hooker's 'Species

Filicum,' appear the following remarks on the value of the *venation* in Ferns, which will be interesting to our readers.

"The introduction of the *venation* into our systematic characters, by no one insisted on with more force and truth than by Mr. Brown, is of the utmost importance in systematic arrangement, and constitutes a new era in the study of this family of plants; but we are not thence to infer that the slightest variation in the direction, or union, or some other circumstance in the veins, is therefore to constitute a mark of generic distinction. The generic importance of the *venation* is indeed a matter of great difficulty, and I am far from having the vanity to suppose that I have hit upon the correct medium between the placing too little or too much dependence upon the ramification of the veins. In proportion, however, as we advance in our knowledge of the ferns, we shall be able to set a more just estimate upon the importance of *venation*. The subject is yet in its infancy."

The second part of the work is nearly ready for publication, and will contain the continuation of the Dicksoniæ, including the beautiful and delicate genera, *Hymenophyllum* and *Trichomanes*.

The first part of the seventh volume of Hooker's 'Genera Plantarum' contains plates 601—650, with their descriptions. It "is rich in species from Australia and New Zealand; and there are many remarkable forms among them."

The forthcoming work on the British Fresh-water Algæ, by Mr. A. H. Hassall is to form one vol. 8vo., with seventy lithographic plates executed by the author, being magnified views of all the species of "Confervaceæ and Diatomaceæ hitherto discovered inhabiting the soft waters of the British Isles," with an account of the "modes of reproduction, growth, vitality, distribution, uses, classification and species of this extensive and interesting group of plants." Of the drawings it is remarked "that they are eminently adapted to illustrate, in the most satisfactory manner, the structure and mode of reproduction of these curious aquatics."

On the 8th of February letters arrived from Mr. Drummond, who is still engaged in his botanical researches at the Swan River. The letter contained "some singular mosses, allied to the *Phasca* of Europe in appearance." The plants which were brought in the same ship with the letters had not come to hand when the notice was written.

Mr. Gardner, who left England for Ceylon in September last, has been appointed to the charge of the Botanic Gardens at Kandy, vacant by the recent decease of Mr. Normansell.

Mr. Wm. Gardiner's intention of investigating the botanical treasures of Braemar was briefly noticed in our last.

Three botanists—Mr. C. A. Geyer, Mr. Lüders and Dr. Lindheimer—are about to engage in exploring the most interesting portions of

North-west America ; their collections will be offered to subscribers in sets as they come to hand. Mr. Geyer was undecided as to his course and the particular field of his researches when he left St. Louis. Mr. Lüders expects to spend next winter and perhaps the following summer at a Roman-Catholic missionary station on the upper waters of Great Snake river. And Dr. Lindheimer will devote a few years to the exploration of Texas. The former collections of these botanists are stated by Dr. Gray to be "well selected, very complete and finely prepared."

The second article in the number is a "*Description and Figure of a new Species of Oxalis from Columbia, by W. J. H.*" This new species, named *O. Lindsææfolia*, was gathered by Mr. Wm. Lobb. It is said to be allied to *O. (Biophytum) sensitiva, L.*, but distinct from any hitherto published.

"*Description, with a Figure, of Hyobanche sanguinea, Thunb., by W. H. Harvey, Esq.*" This is a curious, fleshy, parasitical plant, the only species of the genus, and found on roots of various plants in the flats at the Cape of Good Hope, in September and October. The author's figure and description were taken from recent examples. He observes that "the genus is usually placed in *Orobanchæ*, but the structure of the ovary is so completely analogous to that of *Harveya*, which Sir W. J. Hooker has referred to the *Scrophularinæ*, that I do not see how they can be separated." The author further remarks that though the placentæ, strictly speaking, are formed from the introflexed margins of the valves, yet they meet in the centre of the capsule, and are there firmly united into a central piece, a line at right angles with the dissepiment showing where the surfaces coalesce. The distinctions between parietal and central placentæ appear but trifling, since, theoretically, all have the same origin ; a central differing from a parietal placenta only in the greater degree of inflexion of the margins of the carpel. In the explanation of the plate the plant is called *H. coccinea*.

"*Description, with a Figure, of a new species of Thuja, the Alerse of Chili, by W. J. H.*" The tree producing the timber imported from the south of Chili, in the form of shingles or planks, under the name of Alerse or Alerze, appears to have been hitherto unknown to botanists. The author has in his herbarium "a specimen of a *Thuja* with immature fruit, gathered by Captain King in the Straits of Magelhaens." On this being shown to Mr. Bridges after his return from Chiloe, that gentleman pronounced it to be the true Alerse ; and subsequently forwarded to the author a barren specimen of the same

plant, which he had gathered in the mountains near the Bay of Valdivia. Being an apparently undescribed species, the author has named it *Thuja tetragona*, and has given the character and description in the paper under notice. Captain King has given a full and interesting account of the Alerse, and its valuable properties as a timber, in his 'Voyage of the Adventure and Beagle,' (i. 282); which, together with the notices added by Captain Fitzroy, are quoted at length in the article. The tree appears to be one of great height and diameter, for Captain King states that "spars eighty or ninety feet long may be procured, and from eight hundred to one thousand boards are frequently obtained from a single tree; I was told even so many as one thousand five hundred out of one trunk." The planks are "seven or eight feet long, two inches thick, and nine or ten inches wide." The straightness of grain enables the natives to split the tree so as to make it appear as if "dressed with an adze, or even with a plane," but the axe is the only instrument used. The wood is used chiefly for "the floors, partitions and weather-boards of houses, and also for shingling the roof," and for the latter purpose it is said to be very durable: it neither shrinks nor warps, is close-grained and well adapted for furniture: staves for casks are also made from it by the country people. The bark serves to caulk the seams of vessels, and the spars have been found peculiarly strong and valuable for the masts.

Captain Fitzroy's account of the mode of obtaining the Alerse is very interesting. The natives work in family parties, at what are termed *Astilleros*, where the trees are felled. Here they work for four or five weeks, and then return home to attend to their potato-grounds and other domestic affairs, "till their feet heal, and a paralytic motion of the legs, acquired in the *Astillero*, has ceased," when "they return for another cargo, and work till their feet and limbs can stand it no longer." To this laborious life children are inured from a very early age.

"*Enumeration of the Mosses and Hepaticæ, collected in Brazil by George Gardner, Esq., drawn up by Sir W. J. Hooker, and W. Wilson, Esq.*" This list contains one hundred and twenty-six mosses (fourteen of which are described as new species), fourteen Hepaticæ and nine lichens.

ART. CCX. — Notice of '*The London Catalogue of British Plants. Published under the direction of the Botanical Society of London. Adapted for an Index Catalogue to British Herbaria;*

for marking Desiderata in Exchanges of Specimens ; for indicating the Species of local districts ; and for a guide to botanical collectors, by showing the comparative rarity or frequency of the several species. London : William Pamplin, 45, Frith-street, Soho. 1844.

THE title of this Catalogue, which we have given at full length, will sufficiently explain the objects proposed by the compilers. It may be had either as a large broadside, like the earlier edition of the Edinburgh Society's list, or as an 8vo. pamphlet. The arrangement adopted is that of the natural system ; and the nomenclature, in general, that of the fifth edition of Hooker's 'British Flora.' The species are numbered continuously from 1 to 1428 ; "that being deemed the most convenient method in a Catalogue, designed to be used as an Index to herbaria and duplicate stores." For an index to herbaria we have always had a predilection for the plan of numbering the genera continuously, and giving a new set of numbers — beginning with 1 — to the species under each genus : but this may be merely a matter of opinion. The list of *Salices* has been drawn up by the Rev. J. B. Leefe ; and the arrangement of the *Rubi* was entrusted to Mr. Edwin Lees. The two gentlemen who have undertaken the arrangement of the species of these difficult and ill-understood genera, are well known to have devoted their attention to this particular subject for many years past. A list of about a hundred species is given, being such as are considered "either scarcely naturalised, or not recently found in the localities indicated for them : " and the names of "introduced species, now more or less naturalised, are printed in *italics*." The number of species &c. is thus summed up : —

Indigenous Species,	1305
Naturalized Species,	132
Excluded Species,	102
Varieties,	495

2034

From the numerous enquiries which have been addressed to us respecting a list of plants arranged on the natural system, we have but little doubt that the London Catalogue will attain a wide circulation among British botanists, without at all interfering with any of its predecessors, which may have been arranged on a different plan.

ART. CCXI.—*Varieties.*

461. *Note on Hieracium maculatum.* In your last number (Phytol. 804) Mr. Watson alludes to the luxuriant specimens of *Hieracium maculatum* in Smith's herbarium as being the effect of cultivation; I have several specimens of the plant collected from the top of the wall of our yard, which are equal to the largest size mentioned in 'English Flora.' There has been a good crop of them every summer, and the general height is from two to three feet. I have not seen any under that size when full grown, except some plants that have vegetated in the joints of the stones on the face of the wall, where there was not enough soil to nourish them, and consequently their smaller size may be easily ascribed to starvation. I gathered some specimens from the joints full two feet high; they had in general from five to seven leaves on the stem before they branched; the flowers numbered from about eighteen or twenty to nearly forty in some of the largest plants, besides numbers of buds not much larger than large pin-heads. The soil in which they grew consisted chiefly of decayed mortar. The wall in question is exposed to the full force of the summer's sun for the whole day, so that the plant must be able to grow in extremely dry situations, since it grew so luxuriantly there. I think that a great many discrepancies in statements of the mode of flowering, and also of the number of flowers, arise from not taking notice at what period the specimens described are gathered. I think if the state of the central flower were mentioned, in connexion with the number of flowers, it would be much more exact. I have generally found that when the central flower was fully expanded, the flowers and buds were generally about twenty in number; when the central flower had its seeds about ripe, as shown by the white down being conspicuous, there were from twenty-four to thirty; when the central flower had dispersed its seeds, they ranged nearer forty. The radical leaves were all decayed at the time the plant was in flower; but though withered, they were easily seen to accord with the description in 'English Flora.' The only discrepancy exhibited was in the arrangement of the floral branches. Smith says "stem *cymose*," "flower-stalks — form an irregular, sometimes compound, *cymose* panicle;" in the specimens I examined there was not one truly *cymose*, as explained in his 'Introduction,' where he defines a *cyme* — "its common stalks all spring from one centre," — but rather according with his description of *H.*

pulmonarium,—“the first partial stalk remaining always much lower than the rest,” the central flower above mentioned being always overtopped by the upper floral branches. Another character Smith does not allude to, is the gradual change of the leaves from the “radical ones on long hairy footstalks,” to the “scattered linear hairy bracteas.” I have called those leaves stem-leaves below the first floral branch, but some of those at the base of other floral branches may also be called stem-leaves, not having departed from the dentated outline of the lower leaves, although much narrower. As to the question of its being a species distinct from *H. sylvaticum*, with which it is united in the Edinburgh Catalogue, I do not consider myself competent to offer an opinion.—*James Bladon ; Pont-y-Pool, Dec. 1843.*

462. *Note on Ornithopus perpusillus?* I was puzzled in the summer of 1842, with a small leguminous plant that I found on the top of one of our mountains, and which I could not then make out. It was not above an inch high in the highest part of it, and all its flowers and legumes were in pairs. I brought a sod of it home, containing about half-a-dozen plants. I earnestly watched them (until they were killed by the frosts of winter) both blossoming and seeding, but they did not deviate from their former size and appearance. The above plant [*Ornithopus perpusillus*] was the nearest I could find whose description partially agreed with my humble *protegé*. This past summer I determined to test it again; I accordingly sowed some of the seeds in February, March and April, in some old flower-pots. One of the seeds vegetated in about three weeks, the others were from six to ten weeks before they threw up their husks. Some of them had not produced any flowers when they fell under the harshness of the weather in the present week. Some of the smallest had leaves and stems about an inch and a half high; others had the leaves three inches and stems from three to six inches long: one plant in particular threw up a single stem nearly fifteen inches long: but they all produced flowers and legumes in pairs, except two heads, one of which had three flowers and the other five, but they were both unfruitful not producing one legume in either head. From the luxuriant growth of some of the plants, I now suspect that it is a variety of *O. perpusillus*. *Id. January 20, 1844.*

463. *Note on Campanulas.* During the two last summers having gathered a few plants of some of the few-flowered species when nearly flowering, and transplanted them into some flower-pots for the purpose of observing whether the spreading or closing of the sepals was constant in the same plant; — I observed the following peculiarity in

their flowering, but do not know whether it has been previously noticed or not. After the flower opens, and before the pollen is ripe, the position of the flower changes from pendant or drooping to nearly upright, or so much so as to permit the sun's rays to penetrate to the bottom of the flower: when the pollen is ripe and ready to be scattered, the flower then resumes its original position. Whether this is effected by the twisting of the peduncle, or by reversing the natural curve, I did not observe. The upper part of the peduncle during that period always presented a sigmoid flexure. With regard to the principal object of my attention, the spreading or closing of the calyx-segments, I think they ought to be observed more than they have hitherto been, as I suspect the spreading of their segments may be of use in determining nearly-allied species, as I have observed a constant difference in the whole contour of the flower accompanying the different position of the sepals.—*Id.*

464. *Note on the Equiseta.* I am very much pleased to find that Mr. Newman has paid attention to the different appearances of the section of the different species; as I have always suspected that if fully pursued through all our species, they would very much assist in their discrimination. The descriptions would have been more perfect had it been stated how the tubular passages increase in number from the root upwards. In *E. Telmateia* particularly they increase from about six or eight in the lowest internodes, regularly with every joint, they become too numerous and too minute to be counted with the unassisted eye. As they increase in number they decrease in size, while the stem does not decrease.—*Id.*

465. *Note on the effects of the late mild winter.* On Christmas-eve and Christmas-day I heard both the thrush and robin singing — one proof out of the many afforded of the unusual mildness of the season, which continued indeed until the end of January; since then we have had a long visit from the three winter graces — frost, snow and ice. In the Christmas week I saw a *Fuchsia* in full blossom in a garden eighteen miles North-east of York: it was unprotected from the weather, but was on the south side of the house. In my own garden, twelve miles North-east of York, I had strawberries in blossom, but for want, I suppose, of the warmer rays of the sun they were of a dingy yellow colour, instead of white. In a garden at York I saw a lilac-tree fast bursting into leaf; and in all parts of the country the same mild season seems to have prevailed to a degree unexampled in the memory of that exceedingly long-lived person — “the oldest inhabitant.”—*F. Orpen Morris; February 15, 1844.*

466. *On Jungermannia Francisci and J. byssacea.* At the suggestion of a correspondent, whom I have been the means of leading into error concerning these two species, I willingly acknowledge that I have not properly understood them, until my friend Mr. Spruce supplied me with genuine examples of *J. Francisci*, a species which I have never gathered. I must therefore request all my correspondents who have received from me specimens named "*J. Francisci*," to substitute the name "*J. byssacea*." In extenuation of the mistake which I have thus committed, let me remark that in the monograph by Sir W. J. Hooker, *J. bifida* of Schmidel is twice cited, once under *J. byssacea*, t. 12, and again, doubtfully, under *J. Francisci*, t. 49, where will be found also the following observation:—"In habit *J. Francisci* certainly approaches *J. byssacea*, but the upright growth of the surculi, and the more concave and less deeply notched leaves are of themselves sufficient marks of discrimination; and when the presence of the stipules is taken into consideration, no difficulty in distinguishing them will be found to occur." Now the fact is, that although *J. byssacea* does sometimes present itself with stipules so very obscure as to escape the ordinary means of detection (in which state I have never failed to recognise it as *J. byssacea*), there are numerous cases where the stipules are quite obvious (as in specimens gathered by Mr. Cruickshank near Dumfries, and in my own specimens gathered on Delamere-forest and elsewhere), so that there can be no doubt that *J. byssacea* ought to be placed in that section of the genus which is possessed of stipules. I have long suspected the stipule-bearing plant was not essentially distinct from *J. byssacea*, but while I was ignorant of the true *J. Francisci*, I naturally referred it to that species. It now remains to ascertain whether our *J. byssacea* is the species so called by Roth. On Delamere-forest, Cheshire, I have seen it growing on blocks of sandstone, in small, compact, rounded tufts, the surculi being of course erect, and bearing very evident stipules. — *W. Wilson*; *Warrington, February 20, 1844.*

467. *On the parasitism of Orobanche.* While in Wales last summer, I obtained very satisfactory evidence of the parasitical habit of *Orobanche major* and *O. barbata*. As regards the latter species, there is already a correct representation (as far as it goes) given at tab. 2859 of the 'Supplement to English Botany;' but as nothing is stated in the description beyond the mere fact of parasitism, I may be pardoned for presenting the readers of 'The Phytologist' with the result of my own observations, which were made independently of what had been

done by others. Of all cases of parasitism by means of roots, none are more striking than those which occur in *Orobanche*, inasmuch as the parasite does not attach itself laterally, but at the very extremity of a root of the nutrient plant; *O. barbata* seizing upon the roots of ivy, while *O. major* attaches itself to the roots of *Ulex europæus*. In the latter case, the root of *Ulex* becomes very much swelled at the point of contact; a longitudinal section of it and of the scaly rhizoma of the *Orobanche*, presented the appearance of such complete union of the cellular tissue of both plants, that the exact line of junction could not be absolutely determined; and it seemed as if even the vascular tissue of the two plants had become intimately blended; the base of the rhizoma of the *Orobanche* being continuous with the root of the *Ulex*. It is difficult to comprehend in what way the seeds of *Orobanche* are brought into contact with the roots of its prey, unless it be by the agency of earthworms or slugs. Perhaps some one who has facilities for the purpose, will undertake to study the germination of these plants, for the benefit of the readers of 'The Phytologist.'—*Id.*

468. *Note on Villarsia nymphæoides*, (Phytol. 904).* The *Villarsia nymphæoides* is met with in an old deserted bed of the Clyde below Govan, on the north side of the river, and in the dam very abundantly between Partrick and Govan-ferry, immediately west of York-hill, where it has been abundantly found in both places for more than twenty years; but I remember well its introduction. At a time when we were cleaning out the pond in the old Botanic Garden, I filled my specimen-box with it, and going at the time to the Highlands, I emptied it out in both these places before going on board the steam-boat at Govan-ferry. I also put in some of the *Stratiotes* and *Nuphar lutea*, both of which continue to exist, although they have not spread like the other. Thirty-five years ago the Rev. Mr. M'Ritchie, of the parish of Cluney (Perthshire), introduced the *Villarsia* into the Loch of Cluney, and it has spread over several acres of its surface. We put a good many plants into the Kelvin three years ago; and last summer it made some appearance opposite the garden. — *Stewart Murray; Botanic Garden, Glasgow, March 9, 1844.*

469. *Effect of cultivation on Hyacinthus non-scriptus*, Linn. When this plant is taken from its native woods, and planted in an ordinary flower-bed, I have reason to believe that the following changes take place in its habit and characters; namely, the inflorescence ceases to be either secund or drooping, and the flowers become more widely

* Communicated by Professor Balfour.

campanulate. I have nowhere read any notice of this change, nor am I aware either of the length of time required to produce it, or if it be a uniform result. The observations on which my remarks are founded, having been made many years since, and not being in all points perfectly conclusive, I am now on the point of renewing them, and my reason for bringing the subject before the readers of 'The Phytologist' at this time, instead of waiting until I have made the experiment, is, that others may try it as well as myself. My own intention is to obtain some of the roots from a wood some time during the next fortnight, and plant them in various aspects of my garden, and in soils of different kind; and I should recommend others who make the experiment, to vary it in the same manner. I should also advise their obtaining the bulbs immediately on reading this note, as it will very soon be too late for removing the roots in time for this year's flowering.—*T. Bell Saller; Ryde, March 11, 1844.*

470. *Note on the arrangement of Mosses for the Herbarium.* The plan mentioned by Mr. Townsend in your last number (Phytol. 901) of arranging mosses by glueing all the specimens to the paper, is very little used I think by any one who attempts to *study* that tribe of plants; for no modern muscologist would be satisfied with the examination of a moss when so fastened down, however white and transparent the paper may be; nor am I aware of any one who aims at investigating them by putting his herbarium-sheets under the microscope. The plan of keeping mosses loose in cases or pockets, is certainly a step in advance of the above; but the most desirable method is perhaps found in combining the two: this is productive of a greater degree of neatness, and offers better facilities for reference. Specimens in various stages of growth, and from different localities, may be glued down so as to present at a glance the general outline and prominent characters of a species; while two small cases or pockets should also be attached to the paper, one containing loose specimens for minute examination, the other dissections of the peristome &c., mounted between layers of talc for the microscope. It is very useful to have a small book containing a specimen or two of each species, either glued down or enclosed in similar cases, to carry in the pocket for reference, when the principal collection may not be at hand. — *J. Sidebotham; Manchester, March 13, 1844.*

471. *Alectoria jubata.* I have much pleasure in communicating that my hope is already realized of being able to supply my subscribers to this season's botanical distribution, with specimens of *Alectoria jubata* bearing *true fructification*, (Phytol. 918). This interesting

rarity I collected in Deerhill-wood, on the 5th of March, whilst wading above knee-deep in snow ! The day was fair and frosty, and the hard surface of the snow on the roads tempted me to the enjoyment of the walk ; and being desirous of a peep into the woods, to mark the difference of their wintry aspect from that of the genial summer, when every tree is loaded with verdure, and alive with the music of birds, I prolonged my walk to the base of the Sidlaws, and entered the woodlands. The scene was bleak and cheerless. The young leaves were yet cradled in their buds. The breeze indeed was there, but its softness was wanting, and no breath of sweet flowers nor song of happy birds, did it diffuse around, as it sullenly moaned through the dark pines. Even the mossy carpet was wanting, as snow covered the ground to the depth of several feet, which, being here quite soft, rendered it necessary to *wade* instead of walk, and consequently made one's progress slow and fatiguing. Yet even here, in the midst of winter's sterility, the lover of Flora could enjoy a rich banquet, for the trees are in many places profusely decorated with Lichens. Besides the *Alectoria* I have here collected the following species, *all in fructification*, although on some of them the apothecia were but sparingly developed. *Usnea barbata*, *U. florida*, *Cetraria glauca*, *C. sepincola*, *Borreria furfuracea*, *Parmelia physodes*, *Evernia prunastri* and *Ramalina fastigiata*. — *William Gardiner ; 40, Overgate, Dundee, March 18, 1844.*

ART. CCXII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

March 1, 1844. — J. E. Gray, Esq., F.R.S., &c., President, in the chair. Various donations were announced, including some species of *Algæ* from Cape Raceife, Algoa Bay, from Mr. Bowerbank.

Read the conclusion of the paper commenced at the last meeting, being 'A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks, by Edwin Lees, Esq., F.L.S.' It is unnecessary to enter into further details respecting Mr. Lees' views on the groups, species and varieties of British Rubi, as they are now before the botanical world, in 'The London Catalogue of British Plants,' just published by the Botanical Society. The paper was accompanied by drawings and numerous specimens, the latter are deposited in the Society's herbarium.—*G. E. D.*

THE PHYTOLOGIST.

No. XXXVI.

MAY, MDCCCXLIV.

PRICE 1s.

ART. CCXIII.—*Analytical Notice, with Illustrations, of a ‘History of British Ferns and allied Genera.’* By EDWARD NEWMAN, F.L.S., Z.S., &c. London: Van Voorst, 1844.



Lomaria spicant.

WE scarcely know a paragraph more replete with truth than that selected by the author for his motto. “Monographers, come from whence they may, have, I think, fair pretence to challenge some regard and approbation from the lovers of Natural History; for as no man can alone investigate all the works of Nature, these partial writers may, each in their department, be more accurate in their discoveries, and freer from errors than more general writers, and so by degrees

may pave the way to an universal correct Natural History.”* If this be true (and who shall gainsay it?) how true also is the converse of the proposition! — General writers, come from whence they may, have slight pretence to challenge regard and approbation from the lovers of Natural History: for as no man can alone investigate all the works of Nature, these general writers must be less accurate in their discoveries, and less free from errors than more partial writers, and so by degrees they introduce manifold errors into Natural History. Without making any attempt to criticise the works of our masters in the science, and confining our attention entirely to living authors, we may, without hesitation, give the unqualified precedence to monographers. We may safely assert that we know of no botanist who combines writing *much* with writing *well*.

In the field the author has chosen for his labours, he may be said to have no competitor; it is true, there are two other works treating precisely on the same subject, but one of these, Bolton’s ‘*Filices*,’ has long been out of print, and the other, Francis’ ‘*Analysis*,’ rather brings into one point of view our knowledge of ferns as derived from Sir J. E. Smith, Sir W. J. Hooker, and Mr. Mackay, than supplies us with a well digested history of that beautiful tribe.

The classification of ferns has lately received great assistance from the application of a character either overlooked or neglected by all the older botanical writers; we allude to the venation. Presl on the continent, and Mr. John Smith in this country, have taken the lead in bringing this valuable character into notice; and the result of its application seems rather to illustrate the value of the Linnean grouping of these plants, than detract from its utility or interfere with its detail, while, at the same time, it must be acknowledged, it decidedly discomposes the labours of Sir J. E. Smith, and induces a smile at the very complacent manner in which he congratulates himself on the perfection of his own performances.†

In classification, our author is decidedly a pupil of the modern school, without, however, being a servile follower of its able founders. He works with their characters, but does not always attain the same results. Consequently, his nomenclature is *toto cœlo* at variance with that so long in general use. On the first promulgation of his views on this subject, in 1839-40, there was a general denuncia-

* Gilbert White.

† See the introductory observations to the *Cryptogamia Filices* in the 4th volume of the ‘*English Flora*.’

tion of changes so radical and complete ; but Mr. John Smith's paper on the same subject, read almost immediately afterwards at the Linnean Society, and perhaps the most profound and useful treatise ever presented to that body, obtained a hearing and a respect which was denied to Mr. Newman as an unknown botanist. We believe this is always the case ; *great* changes, to ensure prompt attention and respect must be introduced by *great* men, by men of established reputation ; or they fail of the desired object. Such was very decidedly the case as regards our author ; and botanists, who one month proclaimed the absurdity of Mr. Newman's innovations, were seen the following month bending the supple knee to the same innovations, when sanctioned by the European reputation of Mr. Smith. Soon after this confirmation of Mr. Newman's views, Dr. Balfour and Mr. Babington, the authors of the Edinburgh Catalogue, adopted the alterations, and were the means of disseminating them from John o' Groat's to the Land's End. But, in the midst of its successful career, the new nomenclature met a most decided check in the publication of the fifth edition of Sir W. Hooker's 'British Flora,' wherein we were astonished to find the changes introduced by Mr. Newman, not only fathered upon the authors of the Edinburgh Catalogue, but the new names given as synonymes, and the old nomenclature restored in all its glory. The 'British Flora' was almost immediately followed by Mr. Babington's Manual, and very recently by the list of the Botanical Society of London, principally from the pen of that accomplished botanist, Mr. Watson ; and both these authors adopt Mr. Newman's nomenclature. It would be idle for us to deny the weight and authority of a name like Sir W. Hooker's, and we do not hesitate to express our belief that it will have great influence in retarding the adoption of the altered nomenclature of ferns ; but only of retarding it : the time has now arrived when each successive author enquires for himself, when he takes little or nothing for granted, and without pinning his faith on the sleeve of an individual writer, ventures to consult the works of Ray,* Schkuhr, Kunze, Swartz, Weiss, Presl, Schott, Dietrich, Decandolle, Roth, Wahlenberg, Weber, Hoffmann, &c., and to form a judgment of his own. This being the case, we are willing to abide the issue ; and confidently hope eventually to see that nomenclature adopted which possesses the greatest intrinsic

* No man can form a just estimate of what is due to each classification of ferns, without going back even to Ray, whose 'Methodus Plantarum' contains the draft of the system, which, under Sir J. E. Smith, Swartz and Willdenow, subsequently became so famous.

merit, combined with the claim of priority, without reference to the reputation of one author or the obscurity of another.

In the synopsis with which the author commences his 'History,' there is evinced a total disregard of established notions; but in the History itself, this disregard is kept more under control, and large concessions are made to what the author evidently regards as received errors. Thus, the artificial genus *Polypodium* is preserved in the History, but the species are separated in the synopsis: the names of *Polypodium calcareum* and *Hymenophyllum Wilsoni* are given in the History, the prior and original names of *Polypodium robertianum* (*Hoffmann*) and *Hymenophyllum unilaterale* (*Willdenow*) in the synopsis. These and numerous other instances of attempted conciliation, of noticing without reforming the manifold errors which have so long been perpetuated through the most gross carelessness and inattention, were, in our opinion, uncalled for; and we think the author would have done better to revert at once to what he considered the correct nomenclature, even though every name employed by Sir J. E. Smith had been thereby obliterated from the catalogue of British ferns. The number of errors into which Sir J. E. Smith has fallen, exceeds all belief; and some of them appear inexplicable. Knowing how intimately Sir James was acquainted with the works of Roth and Hoffmann, seeing how constantly he quotes them throughout his descriptions of the ferns, it seems scarcely credible that in two instances at least he should have renamed ferns which they had carefully described, and have given them to the world as altogether new; and that in another instance he should have described one fern under three names, dwelling on differences which had no existence. The axiom, *de mortuis nil nisi bonum*, was doubtless conceived in love, and is worthy of general acceptance; but we deny that the grave should be made thus to consecrate error, thereby conferring an injury both on the dead and the living, robbing those who are departed of their just reputation, and diverting the living student from the paths of truth.

The arrangement adopted in Mr. Newman's 'History,' is not characterised by much novelty. The divisions are these.

1. *Equisetaceæ*.
2. *Adiantaceæ*, including *Adiantum*, *Lomaria* and *Pteris*.
3. *Polypodiaceæ*, including *Allosorus*, *Polypodium* and *Woodsia*.
4. *Aspidiaceæ*, including *Cystopteris*, *Polystichum* and *Lastrea*.
5. *Aspleniaceæ*, including *Athyrium*, *Asplenium*, *Scolopendrium* and *Ceterach*.
6. *Hymenophyllaceæ*, including *Trichomanes* and *Hymenophyllum*.

7. *Osmundaceæ*, *Osmunda* only.
8. *Ophioglossaceæ*, including *Botrychium* and *Ophioglossum*.
9. *Lycopodiaceæ*, including *Lycopodium* and *Isoetes*.
10. *Marsiliaceæ*, *Pilularia* only.



Woodsia alpina

It were almost an insult to the understandings of our fellow-labourers in the field of botanical science, to consider it necessary to point out to them that these divisions, by whatever name they may be called, are of very unequal value. Thus, while the line between the Polypodiaceæ and Aspidiaceæ is almost incapable of definition, that between Equisetaceæ and all the rest is so manifest, as to have led some modern botanists to disconnect them from the cryptogamous and place them among phænogamous plants. These discrepancies might furnish the hypercritic with a fruitful theme, and the introductory synopsis might even be employed as affording the weapons of attack.

1. *Equisetaceæ*. These have been so recently described in the pages of 'The Phytologist,' that there has been little time or opportunity for alteration or addition; but we may notice that a further guide to the detection of species is afforded in the careful figures of transverse sections of the stem of each.

2. *Adiantaceæ*. In this group we invite attention to the detailed description of the fructification of *Pteris*. It seems rather extraordinary that although Mr. Newman's views upon this subject have been four years before the public, that they have been allowed to pass unnoticed by Sir W. Hooker and Mr. Babington, both of whom, in their subsequently published works, revert to the old, and, as we consider, totally erroneous description. This question remains an open one; but we are unable to resist the conviction, that Mr. Newman's solution, backed as we find it by the careful observations of Mr. Wilson and Mr. Jenner, is the correct one: the passage is too long to transfer to our pages, and we have already cited (Phytol. 836) a compressed description of the genus from the 'Naturalists' Almanack.'

3. *Polypodiaceæ*. In this group we have to mention the restoration of Bolton's original name of *alpina* to the *Woodsia hyperborea* of Swartz. On the preceding page we have introduced Mr. Newman's portraiture of this pretty little fern.

4. *Aspidiaceæ*. Under this division the *dilatata* question is gravely discussed, and, as we think, satisfactorily settled. The author begins with this candid admission of his former erroneous opinions.

"On looking more carefully into those *similarities* which I supposed of sufficient importance to warrant the association of many forms under the specific name of *dilatata*, I find them invariably the concomitants of youth rather than the characteristics of perfection, and they become by degrees more and more obliterated, as the plants year by year advance towards maturity. The *differences*, on the other hand, so equivocally developed in seedling or starved individuals, become distinctly pronounced in the adult and vigorous; and a comparison of these, leaves me no choice but to cancel my former observations as erroneous, and to consider the names *dilatata* and *spinulosa* as having been applied to a family rather than to a species. Admitting this, it becomes a task of great delicacy to select an individual which shall bear alone all the honors of either patronymic. Fully appreciating the difficulty of the case, I have omitted both these names, and employed others which were originally, as now, restricted to *one* species."—p. 208.

Three species are then carefully and fully described, under the names of *Lastræa spinosa*, *L. multiflora* and *L. recurva*; the descriptions occupying twenty-seven pages, and being accompanied by numerous figures illustrating the circumscription of frond, the form of involucre, and the character of the scales. All the three appear to

be most abundant species ; together they constitute the *Polypodium cristatum* of Hudson, the *Aspidium dilatatum* of Smith and Babington, and the *Aspidium spinulosum* of Hooker. It will doubtless be objected, by some of our readers, that the old names should have been retained in preference to those with which we are comparatively unacquainted. On this point we are disposed to join issue : we submit that it is impossible to decide, from a Latin description of two or three lines, which of these species was the *spinulosum* of Müller or the *dilatatum* of Hoffmann ; and we think Mr. Newman has done perfectly right in adopting for each the earliest name which combines the two postulates of being accompanied by an *intelligible* description, and of being *confined to a single species*. This practice is somewhat stringent perhaps, but it is certainly wholesome. On the two next pages we introduce figures of *Lastræa multiflora* and *L. recurva* as the two species which possess the greatest claim to be considered additions to the British Flora. Circumscription of frond is a point strenuously insisted on by the author, as separating these species ; since, however it may approach in young specimens, it recedes in those which are mature : but add to this that the involucre, the scales, the glands, the scent, the venation, the form of pinnules (in one convex in the other concave), are all widely and unvaryingly different, he indeed were a bold man who, after going into such a mass of evidence, shall utterly reject the inferences, and again blend these two species with the third (*L. spinosa*) under a single name. We must not, however, be understood as expressing any decided opinion that Mr. Newman's species will be generally or rapidly adopted. We are too well acquainted with the disinclination there is to adopt the views of a *new man* (the pun is quite unintentional)—to enter on the difficult task of careful collation and examination, except under the banner of authority : it is only by degrees, and through the exercise of the most perfect candour, that conviction will reach the mind of the enquiring botanist.

With regard to the species which we hold as the most important addition to our Flora — *Lastræa recurva* — Mr. Newman has already strong opponents, as will appear from the following paragraph.

“ When I first saw this beautiful fern in the North of Ireland, I was in company with Mr. William Bennett, and I instantly pronounced it a species new to Britain. I traced it in many of the Irish counties with the same feeling of certainty ; and it was only in deference to the judgment of three distinguished botanists, the late Professor Don, Mr. Moore of Dublin, and Mr. Babington of Cambridge, that I at last abandoned my opinion, and consented to give the species as a variety of *dilatata*. Profes-

*Lastrea multiflora.*

sor Don, although he had frequent opportunities of consulting my somewhat ample materials on the subject, never in any degree wavered from his first opinion; and Mr. Moore and Mr. Babington, who have enjoyed the best possible opportunities of forming an accurate decision, having seen it growing in all states and in an infinite variety

*Lastræa recurva.*

of stations, still consider it a mere form of *Last. dilatata*. The testimony of Sir W. Hooker I have already adduced. In adding another species to our list of British ferns, I think it but a matter of justice to my readers to show that I stand opposed to four of our most distinguished botanists. On the other hand, it is no little consolation that I

am able to announce the judgment of Messrs. Bree, Borrer and Jenner, as corresponding with my own."—p. 233.

The characters by which these ferns are to be distinguished, have already appeared in the pages of 'The Phytologist,' in our notice of the 'Naturalist's Almanack,' (Phytol. 837); the only alteration to which we have to invite the attention of botanists, is the substitution of the name of *multiflora* for that of *dilatata*.

5. *Aspleniaceæ*. Under *Athyrium Filix-femina*, the author comprehends five of Roth's species, without expressing any very decided opinion on the subject of their value. His views may be gathered from the following passage.

"By retaining all these forms under the name of *Filix-femina*, in accordance with the views of Decandolle, Sadler, Hooker and Babington, I rather bow to the views of these eminent botanists than follow any of my own. It seems to me that three at least of the forms described by Roth, those adopted in the 'Naturalists' Almanack,' have the habit and appearance of species; but at the same time I cannot say that the grounds of separation adduced by Roth appear to me satisfactory: neither the scales, involucre, nor position of the clusters of capsules, are adduced as evidence; and surely, before adopting the species, we must learn whether these are dissimilar or identical. Roth is entitled to great praise for what he has done, but it is left for others to earn still greater praise by adducing real diagnostics to corroborate his views."—p. 247.

The question is perhaps one of the most difficult in the study of our British ferns. It appears that two of the most acute discriminators of specific differences insist on these plants being entitled to the rank of species; while others, whose names stand equally high, dismiss them as totally unworthy of mention, even as varieties: the latter view is adopted by British botanists, and seems to us uncourteous in the extreme. How can we in fairness object to the course occasionally pursued on the continent, of neglecting names imposed in Great Britain, in order that later continental names may be substituted, while we are deliberately and designedly neglecting the labours of a man like Roth, whose extreme carefulness is a pattern to us all?

After *Athyrium Filix-femina*, *Asplenium fontanum*, or perhaps more correctly, *A. Halleri*, should have followed in course, but the author omits it altogether, and passes on to *A. lanceolatum*. It is, perhaps, not generally known to what chance we are indebted for this fern in the list of British plants; the following particulars may interest some of our readers. Hudson, in his 'Flora Anglica,' gives *Polypodium fontanum* with the following habitat: "Habitat in muris antiquis et rupibus. supra Hammersham Church, D. Bradney; in locis saxosis prope Wybourn in Westmorlandia." Now if we study Hudson's

mode of giving habitats, and his general accuracy as to counties, we may translate the passage thus: *Habitat* old walls and rocks above Hammersham Church, (authority) Mr. Bradney; and stony places about Wybourn, *both* in Westmoreland." The word *both* of course is not in the Latin, but the plan of Hudson's work warrants its insertion. Withering translates the passage fairly and literally, but other authors do not deserve the like praise. Sir J. E. Smith gives it thus, "On Amersham or, Agmondesham, church, Bucks, found by a Mr. Bradney, according to Hudson." This translation, it will be seen, is totally at variance with the original. We do not consider ourselves called on to pursue the subject further than to say that we cordially approve of the omission of *Asplenium fontanum* from the catalogue of British ferns.

Asplenium Adiantum-nigrum affords an instance of three continental being blended in one British species; and we again have to censure the unfairness or carelessness which has been instrumental to the result. We do not urge the adoption of all the species, but we urge the necessity of a dispassionate enquiry, and the expression of a candid opinion as to their value. We cite the descriptions from Sadler, as quoted in Mr. Newman's Appendix.

"*Asplenium obtusum*, Kit. Fronde ovato-triangulari basi bipinnatifida, medio bipinnata, apice simpliciter pinnata: pinnulis oblongis et laciniis obtusis remotis, apice inæqualiter obtuse dentatis, rhachi alata. * * * 'E rhizomate horizontali fusco perpendiculariter descendunt radiculae tenues fuscescentes. Stipites 3—4-pollicares basi fuscescentes canaliculati nitidi e rhizomate adscendunt. Rhachis viridis est et margine foliaceo-viridi cingitur. Frons 3—4-pollicaris ovato-triangularis, viridis; siccatione obscurior evadens, bipinnata (*basi tripinnatifida*) est, pinnarum inferiorum pinnulis primariis pinnatifidis, laciniis cuneiformibus obtusis, apice inæqualiter dentatis, pinnulae superiores etiam obtuse dentatae sunt. Sori congenerum, in qualibet lacinia aut pinnula 3—4. Indusia membranacea.' Sadl. Adumbr. Epiph. 1.c." Sadler, De Filicibus Veris Hungariæ, &c. p. 50.

"*Asplenium Adiantum-nigrum*, L. Fronde ovato-triangulari, basi bipinnatifida medio bipinnata, apice simpliciter pinnata, pinnulis oblongis et laciniis acutis approximatis acute dentatis, rhachi non alata. * * * E phrasi characteristica hujus plantæ et e descriptione præcedenti adnexa differentia harum adfinium specierum satis liquet."—Id. p. 51.

"*Asplenium acutum*, Bory. Fronde ovato-triangulari longe acuminata, pinnis pinnulisque oblongo-lanceolatis longe acuminatis, pinnis propriis et laciniis lanceolatis, approximatis, acute et profunde inciso-dentatis; dentibus subbidenticulatis. * * 'Radix et stipites Aspl. Ad. nigri: radix quippe dense fibrosa, fuscescens. Stipites ex una radice plures primum cum rhachide virides, demum profunde purpurascens-fuscescentes, nitidi, supra sulcati. Frons—siccatione facillime nigrescens— $\frac{1}{2}$ —1-pedalis, acutissime acuminata, inferius perfecte tripinnata, pinnis propriis acute incisis, in

medio bipinnata, in apice rhachis longe producta, solum acute dentato-incisa est, quod idem de rhachidibus propriis pinnarum oblongo-lanceolarum longe v. longissime productarum valet. Laciniæ omnes lanceolatæ, acutæ, acutissimæ et profunde incisodentatæ. Sori breves solitarii in laciniis, has demum obtegentes. Indusia membranacea.' Sadl. Epiph. l. c."—Id. p. 51.

6. *Hymenophyllaceæ*. *Trichomanes speciosum*. Although four years have now elapsed, it will be fresh in the recollection of many of our readers, how strenuously the author urged the adoption of the name *speciosum* in preference to that of *brevisetum*; how the world of British botanists was almost to a man arrayed against him; how it was held to be impossible either that a tropical plant should exist in Ireland, or that, so existing, Robert Brown should have overlooked the fact. It has come within the compass of our knowledge, that the daring alteration was repeatedly pointed out as a proof of our author's want of information and want of ability to grapple with the subject of nomenclature. What has now become of the name *brevisetum*? There is but one instance of its being retained; we allude to the 5th edition of Hooker's 'British Flora:' and here we find the name *brevisetum* restored, and that of *speciosum* degraded to the rank of a synonyme; not as the *speciosum* of Willdenow — not as the *speciosum* of Mr. Newman, who pointed out its identity with Willdenow's plant, but of the Edinburgh Catalogue; and yet the authors of that Catalogue merely adopt Mr. Newman's views, as is candidly admitted by Mr. Babington himself.

We turn to a pleasanter subject, the discovery of a new form, if not species, of *Trichomanes*; one so distinct that Mr. Smith supposes it to be the *Trich. radicans* of Swartz. Mr. Mackay's specimens now before us, are so labelled on Mr. Smith's authority; but surely this has been done somewhat too hastily, for in all the specimens of *T. radicans* we have seen, the frond is perfectly sessile, whereas in all the Irish specimens it is distinctly stipitate. Mr. Newman has, we think, exercised a sound discretion in keeping the name of *radicans* quite out of view. Whether or not the new plant could by possibility be the true *T. radicans*; whether the Killarney plant was really distinct, and whether, if not distinct, Swartz's name should not be applied to both; are questions which were agitated for months without any satisfactory result. The author, after citing the published notices of this interesting plant, thus continues.

"Mr. Andrews has obligingly furnished me with the following characters of the two plants. The first I will call *Trichomanes speciosum*, var. *Andrewsii*.

"*Trichomanes* — ? Frond lanceolate, twice pinnated, lower pinnae distant,



Frond of *Trichomanes speciosum*, var. *Andrewsii*, natural size.
 recurved receptacles.

a. Portions of pinnules showing the

short, ultimate segments of the pinnæ decurrent serrated lobed linear acute. Rachis winged, very long. Receptacles six times longer than the involucre. Root long scarcely tomentose. Habitat, moist rocky cave, Glouin Caragh, Kerry.

“*Trichomanes speciosum*. Frond angular thrice pinnate, lowest pinnæ longest

densely crowded and tripinnated, lobes of the pinnæ linear blunt. Rachis winged, short. Receptacles two or three times longer than the involucre. Root thick densely tomentose. Habitat, Turk, Killarney; Glouin Caragh; Mount Eagle, Kerry.'

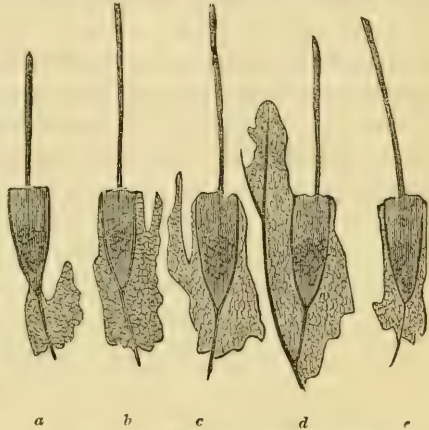
"Mr. Andrews further observes, that 'the striking character of the Glouin Caragh plant is the amazing length of the receptacles, which, in the growing state of the plant, turn up from the involucre in a curved manner [see figure *a* on the preceding page] showing a most bristly appearance over the entire frond: all the fronds presented the lanceolate character, the lower pinnæ being distant and short; the ultimate segments of all the pinnæ are serrated, the pinnules being decurrent and running to a point; the entire length of the frond was sixteen inches, and from the base of the lowest pinnæ to the apex of the frond eleven inches.'

"In opposition to the views expressed by these three eminent botanists, I will cite that of Mr. Moore, who says, 'I think the *new* Trichomanes to be nothing more than the old plant fully developed, and more attenuated in all its parts, and that this is caused by the dark warm habitat in which it grew. In order to prove whether the old plant could not be altered by being subjected to a different kind of treatment, I had a good healthy pot placed under the stage of a green-house, where it got very little light, and over the glass a piece of old carpet was thrown which was kept constantly saturated with water, so that I considered the plant placed nearly in a similar position to that in which the new plant was found. I soon found that the fronds might be lengthened to an almost incredible extent, and that they became more simple in their appearance; in both these respects well agreeing with the plant discovered by Mr. Andrews.' No fruit has been produced, so that it remains a question whether the *receptacle* also can be elongated by this treatment. Mr. Ogilby, of Dublin, whose name I have before mentioned as a kind contributor of specimens, seems quite to coincide in Mr. Moore's view of the case.

"In accordance with the views previously urged, when describing *Cystopteris fragilis* and *Lastræa multiflora*, I have endeavoured to compare the most mature and perfect fronds from each locality, and the result appears to be 1st, — that the specimens from Glouin Caragh are far more mature and fruitful than those from Killarney: it is a rare thing to obtain specimens from the latter station in a thoroughly mature state; I think I may say that not one frond in fifty exhibits involucre, and not one in many hundreds attains the perfect development and fruitfulness displayed by the Glouin Caragh plant: but 2ndly — I find that the most mature of the Killarney specimens most recede from the Glouin Caragh specimens, a circumstance rather opposed to the supposition that the two are identical, since in general we find ferns developing their specific differences more strikingly as they approach perfection. 3rdly — The length of receptacle is another test of perfection: the Killarney plant, grown at Killarney, has a receptacle of very different length; in the most perfect specimens it is at least four times as long as the involucre, in the least perfect it scarcely protrudes beyond the involucre, and under cultivation it is seldom to be seen at all, thus evidently proclaiming that its length in some measure depends on health, maturity, and a congenial situation. Willdenow, in the passage cited, describes the receptacle as four times the length of the involucre; and I cannot assert either that its frequent departure from this character at Killarney proves anything more than that such departure is a testimony of imperfection, or its attaining this character at Glouin Caragh is to be attributed to any other causes than congenial situation. The form of frond may be capable, as Mr. Moore asserts, of great elongation, but there is no evidence that the rela-

tive length of the pinnæ is also altered: it appears to be a fundamental character of a deltoid frond, that the lowest pair of pinnæ shall be longer than the second pair, the second longer than the third, and so on; and, as far as I am aware, this character is constant in cultivation; at least I can safely assert that it is so in *Asplenium Adiantum-nigrum*, *Lastrea recurva*, &c. The apex of the frond is often lengthened very remarkably, but the lower pinnæ almost invariably partake of a similar elongation. In lanceolate fronds, the lowest pair of pinnæ are usually shorter than the second pair, the second shorter than the third; and this character in *Asplenium lanceolatum*, *Lastrea multiflora* &c., remains unaltered under any condition. Now the two *Trichomanes*, although less decidedly deltoid or lanceolate than the ferns I have cited, follow the same law, each preserving respectively its deltoid or lanceolate tendency under cultivation.

Again, there is a decided difference, as far as I can learn from my limited materials, in the involucre of the two plants. In the Killarney plant the involucre stands out distinctly from the membranous frond, and appears almost stalked, while in all my specimens of the Glouin Caragh plant it is more or less united with the frond by a continuous margin or wing; this will perhaps become more evident from an inspection of the figures in the margin, which fairly express the differences observable in my specimens from each station. Supposing that the deltoid and lanceolate fronds are



a. Involucre of the Killarney plant in its usual state.

b—e, Different states of involucre of Glouin Caragh plant.

constant in each plant, and that the exserted and partially embedded involucre are also constant, I think there can be little doubt that Mr. Andrews's plant claims the rank of a species; the extraordinary length of the receptacle, the less divided state of frond, and the less tomentose rhizoma, so ably pointed out by the Irish botanists, will furnish additional support of such a decision, although I scarcely like to take either of these as a specific character. Still I hesitate to add a species to our British Ferns unless possessed of more ample means for forming an opinion; and I give to the plant the name of *Andrewsii* as a *variety only*, respectfully begging of subsequent describers, that should their views coincide with mine, they will still allow the plant to bear the name of a naturalists to whose ardour and intelligence the science of Botany is under so many and such important obligations."—p. 315.

We are desirous of recording our opinion that *Trichomanes Andrewsii* will hereafter rank as a distinct species; its discrepancies with *speciosum* are fully as great as those of *Hymenophyllum tunbridgense* and *H. unilaterale*; and there seems a general disposition to consider these permanently distinct.

Concerning the remaining tribes we have little to add. The de-

scription and figure of the young frond of *Botrychium Lunaria*, a year prior to its appearance above ground, are new and interesting. The monograph of *Lycopodiaceæ* is already before the readers of 'The Phytologist,' and to this there is no material addition, except a list of habitats; and under *Isoetes lacustris* an interesting detail of its mode of increase, which accounts very clearly for the crowded and elongated state in which it is frequently found. The reprints comprised in the Appendix will be acceptable to botanists.

It may perhaps be expected that we should offer a more decided opinion as to the merits of this work; but let those who think so, recollect the identity of the *author* of the 'History' and the *proprietor* of 'The Phytologist,' and we think it will be allowed that a mere commentary on the contents, and an exhibition of a very few of the illustrations—six out of one hundred and forty,—is all that decency allows, although not less than our position as faithful chroniclers seems to require.

ART. CCXIV.—*Further remarks on Botanical Classification.*

By PHILIP B. AYRES, Esq., M.D.

Thame, April 18, 1844.

SIR,

WHEN I penned my remarks on Mr. Edmonston's views, I certainly did not expect that they would have called forth as his champion a gentleman occupying so high a station in the scientific world as the Vice-President of the Linnean Society. Notwithstanding the great respect I feel for one so distinguished, and fully aware as I am, of the difficulty a raw recruit, like myself, must encounter in opposing a veteran, I must crave your permission to offer a few notes upon the notes of Mr. Forster; and this I shall do with all proper courtesy and deference. I find his notes to consist:—

1. Of remarks upon the terms *artificial* and *natural*.
2. On the meaning of the term *species*.
3. On some innovations of fashionable modern and juvenile botanists.

In the first place, with respect to the artificial and natural systems, I find Mr. Forster affirming that the term natural is equally applicable to the systems of Linnæus, of Jussieu, of Decandolle, &c.; but that the system of Linnæus, preeminently the artificial system, does not show the evident affinity so clearly as the others.

I have been accustomed to consider a system as more natural in proportion as it brings together those beings or substances that bear the greatest resemblance to each other in all their parts, and *vice versa*, as less natural in proportion as these "evident affinities" are disregarded. Whether I am right in my opinion is another question ; but until the above statement is proved to be incorrect, I shall feel myself bound to adhere to it. Tried by the above rule, it is easily shown that the modern so-called natural system deserves that name, while the term "artificial" is justly applied to that of Linnæus, in which so many incongruous forms are united under the same order and class.

Secondly. — I have always thought that "species" was understood by naturalists *as a collective term, including all individuals possessing similar characters, and not applicable to any one individual*. Thus it is improper, in my opinion, to say that a plant, for example, of *Mentha viridis*, is a species ; but rather, that it belongs to the species *viridis* of the genus *Mentha*, the species being a collective term, under which any number of individuals may be ranged. If each individual be a species, it is evident that there are as many species as individuals, which is absurd. The characters of individuals cannot be the individuals themselves. Moreover, *species* being a collective term, cannot exist in external Nature, but becomes an intellectual conception or idea existing in the mind of man alone ; in short, as I have called it in my former communication, an induction. I shall now endeavour to show proofs of this opinion.

The term species, it must be remembered, is applicable to all natural substances and beings ; to animals, to plants, to minerals. It signifies, according to its etymology, a sort or kind. How then does the mind of man arrive at this term ? Obviously the only method is by comparison and abstraction. Man sees around him a vast multitude of substances and beings ; prompted by his natural curiosity, he examines these objects, and finds that certain individuals agree or disagree in their form, their sensible qualities and habits. Placing before his mind a number of individuals, he finds them to agree in all their more important characters, giving to them a kind of identity : and he thence draws the deduction or induction that they belong to the same kind or species. It follows that the *species* is neither an individual nor any number of individuals, but a collective term including all individuals that have existed, do, or may exist, possessing similar characters ; and hence the species is entirely ideal. Proceeding in the same manner by comparison and abstraction, he arrives at the higher

inductions of genus, order, class, &c. Having thus formed an intellectual ladder, he can ascend or descend by it at pleasure; he can follow the original ascending series, or, starting from the higher divisions, he can descend to the individual. The former is done in the construction of species, genera, classes &c.; the latter, when possessing these deductions, he wishes to arrive at particulars. The one is the ascent from particular to general; the other, the descent from the general to the particular.

Thus species, like genus, order and class, being shown to be a purely intellectual conception capable of being expressed by certain characters, it follows that all substances possessing these characters will necessarily belong to, or be included under the *species*.

As the term species is applicable to minerals, to which the power of genesis, in the usual sense of the word, is denied, it follows that the power of generating their like is an accidental, though important, adjunct to the idea of species when applied to organized beings. The power of genesis is then one only of the characters of the species. Thus we are again reduced to the creation of individual plants and animals, having as one of their most important characters the power of reproducing similar individuals.

The foregoing exposition of my views relating to species will explain why I consider that the evidence of varieties is opposed to Mr. Edmonston's opinions, since varieties will be equally intellectual conceptions, differing simply from the primary idea of the species in some unimportant character; — a minor induction. Varieties are of two kinds; those trivial variations that give the peculiar character to the individual, and those more important variations which are constantly found in a certain number of individuals, and are often propagated for several generations. I shall be glad to be informed how the latter are to be distinguished from species, according to the views of my opponents! The very difficulty of distinguishing varieties from species; the alternate exaltation of varieties into species and depression of former species to varieties which abound in all works on systematic Botany, show that they are inductions from a smaller number of characters.

With reference to the quotation from Dr. Lindley's 'Key to Botany,' I have to apologise for the oversight I have inadvertently made, in including the term species among the groups to which he refers in the passage quoted by Mr. Edmonston; but if the previous argument be correct, the lapsus will be of little consequence, since the quotation will be as applicable to species as to any other group.

Thirdly. — I am sorry to see the term “*fashionable*” so constantly applied by the advocates of the Linnæan school to those who follow what they consider a better system, as a term of reproach and ridicule. Fashion implies change, and is used in that sense by the opponents of the natural system; referring, I suppose, to the changes that system has undergone: but surely it must be allowed that progression towards perfection is better than to remain in the same immoveable unimprovable state. The method of Linnæus itself was a progressive change on the older and more imperfect systems that preceded it, as, I think, the system of Jussieu, DeCandolle &c., is a progression from the more imperfect system of Linnæus. Let us expect, then, that in proportion as our knowledge of Nature increases, changes of system must follow as necessary and beneficial results.

As to Nature’s working by “carpenter’s rule,” I can only remark that did not Nature work by rule, the earth would be a chaotic mass; those nice dependencies of beings and substances on each other, and the *order* which even a superficial study of natural objects positively obtrudes upon us, would neither be discoverable, nor indeed would exist. Any one who observes the variations by which allied plants placed under different species approach each other, will see that there must be a type or model on which the species must be based; the general derived from the individual.

If my interpretation of the term species be correct, it will follow that man does make species, as well as genera and other groups, and consequently that the expression “exalting varieties to the rank of species” &c., may be correctly used.

Whoever will compare the various catalogues of British plants, for example, will see that what were formerly termed species are either divided into two or more modern species, or, on the other hand, depressed to the rank of varieties! And how are these divisions, these exaltations and depressions, brought about? By observation of their reproduction by seed? *No*: but by the variation of the value of different characters in the minds of different botanists! What is the value of the term species if it be liable to such mutations?

I have now, Sir, expressed, as clearly as I am able, my notions on the subjects contained in the letters of Mr. Edmonston and Mr. Forster. I shall hail with pleasure the *proof* that they are incorrect, but at the same time I must express my gratification that while Mr. Forster has attacked my opinions on a *few* minor points, he has left untouched the great question of the comparative beauty and utility of the two rival systems.

I hope, Sir, that these observations will be considered, by yourself and readers, as worthy of being "called a reply" to the animadversions of Mr. Forster. And beg to subscribe myself,

Your obedient Servant,

PH. B. AYRES, M.D.

To the Editor of 'The Phytologist.'

ART. CCXV.—*County Lists of the British Ferns and their Allies.*
Compiled by EDWARD NEWMAN.

(Continued from p. 514).

SOMERSETSHIRE.

†*Adiantum Capillus-Veneris*. Said to grow in the mouth of an old well at Clevedon, *Leo. H. Grindon*.

Lomaria spicant. (Dr. Southby), Leigh woods, Bristol (G. Rogers), *H. C. Watson*; Embrough, Wells, but not general, *T. B. Flower*; not uncommon near Bristol, *G. H. K. Thwaites*.

Pteris aquilina. (Dr. Southby), *H. C. Watson*; frequent on heaths and barren places, *T. B. Flower*; common near Bath, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*.

Allosorus crispus. About a mile from Simmon's bath, very sparingly, on a stone wall, in company with *Polytrichum alpinum*, *N. Ward, jun.*

Polypodium vulgare. (Dr. Southby), *H. C. Watson*; frequent in the county, *T. B. Flower*, *C. C. Babington*; very common near Bristol, *G. H. K. Thwaites*. Var. *β. serratum*. With the above, *T. B. Flower*; Cheddar, the variety figured at p. 22 of Newman's Ferns, (W. C. Trevelyan), *H. C. Watson*; exceedingly fine on old trees in Leigh wood &c., *Leo. H. Grindon*.

Polypodium Dryopteris. Rocky places on the Mendip hills, Bristol and Bath, *T. B. Flower*; Widcombe house, Bath, now lost? (Mr. Sole), *C. C. Babington*.

Polypodium calcareum. Cheddar cliffs, *John Harris, jun.*, (W. C. Trevelyan), *H. C. Watson*; Bath, Leigh woods, Bristol, Cheddar cliffs and Mendip hills, *T. B. Flower*; Friary woods, Hinton abbey (T. B. Flower), *C. C. Babington*.

Cystopteris fragilis. Cheddar cliffs, *E. Lees*, (Dr. Southby, W. H. Trevelyan), *H. C. Watson*; Leigh woods near Bristol (G. H. K. Thwaites to Bot. Soc. Lond.) *H. C. Watson*; Bath, Embrough, Wells,

Cheddar, Clevedon, Brockley coombe, and frequent throughout the county, *T. B. Flower*; Widcombe hill (Dr. H. Gibbs), quarries in Hampton down, *C. C. Babington*; abundant on Dundry down, and in small quantities in Nightingale valley, Leigh woods, *G. H. K. Thwaites*; on the oolite at Dundry; Mendip hills above Burrington; Leigh woods, near the foot of Nightingale valley, very luxuriant, *Leo. H. Grindon*. *C. regia*. On the top of the Mendip hills (Sole's M.S. Flora of Somersetshire), Blackstone, *Turner and Dillwyn*.

Polystichum aculeatum. (Dr. Southby), *H. C. Watson*; generally distributed throughout the county in woods and hedge-banks, *T. B. Flower*; a variety, perhaps *F. Lonchitidi affinis* of Ray, among the Cheddar cliffs, *E. Lees*; Kelston, Claverton, Friary wood (T. B. Flower), Langridge (Dr. Alexander), *C. C. Babington*; abundant near Bristol, *G. H. K. Thwaites*.

Polystichum angulare. With the above, *T. B. Flower*; Beechen cliff and Landsdown, near Bath; Hinton abbey, (T. B. Flower), *C. C. Babington*; Long Ashton, *Leo. H. Grindon*.

Polystichum lobatum. (Dr. Southby), *H. C. Watson*; Bath, Bristol, and Mendip hills, and throughout the county, *T. B. Flower*; on the oolite at Dundry, *Leo. H. Grindon*; Prior park, Midford castle (T. B. Flower), *C. C. Babington*; abundant on Dundry down, and sparingly in Leigh woods, *G. H. K. Thwaites*; rocks at Burwell's wood, facing the hot wells (Mr. Sole), *Turner and Dillwyn*.

Lastræa Oreopteris. (Dr. Southby), *H. C. Watson*; Leigh wood, Bristol, frequent, and on the Mendip hills, *T. B. Flower*; Leigh woods, *G. H. K. Thwaites*.

Lastræa Thelypteris. (Dr. Southby), *H. C. Watson*; Burtle, Widmore and Glastonbury moors, frequent, and no doubt to be met with elsewhere in the county, *T. B. Flower*.

Lastræa Filix-mas. (Dr. Southby), *H. C. Watson*; common, *Leo. H. Grindon*; throughout the county: the var. δ *serrata*, is recorded as having been found at Nettlecombe, by Mr. W. C. Trevelyan, *T. B. Flower*; common near Bath, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*.

Lastræa dilatata. Bath; Leigh woods, Bristol; Mendip hills, Embrough, Wells, Axbridge, and generally throughout the county, *T. B. Flower*; Friary wood, Warley and Claverton (T. B. Flower), Hampton woods, *C. C. Babington*; common near Bristol, *G. H. K. Thwaites*; St. Ann's wood, *Leo. H. Grindon*.

Lastræa spinulosa. With the above, *T. B. Flower*; on the oolite at Dundry, *Leo. H. Grindon*.

Athyrium Filix-femina. (Dr. Southby), *H. C. Watson*; Bath; Leigh woods, Bristol; Embrough, Wells, Axbridge, Clevedon, Brockley coombe, and throughout the county, with the varieties β . and γ . *T. B. Flower*; Friary woods, Hinton (*T. B. Flower*), Claverton, *C. C. Babington*; abundant in the vicinity of Bristol, *G. H. K. Thwaites*.

Athyrium irriguum. Not unfrequent upon hill-slopes, *G. H. K. Thwaites*.

Asplenium Adiantum-nigrum. (Dr. Southby), *H. C. Watson*; Bath, Bristol, Wells, Glastonbury, Cheddar rocks, upon the Mendip hills, Weston-super-Mare, Steep Holmes in the Severn, and very generally distributed throughout the county on walls, rocks and hedge-banks, *T. B. Flower*; Kelston, S. Stoke, Widcombe, Colerne, *C. C. Babington*; very abundant in the neighbourhood of Bristol, *G. H. K. Thwaites*.

Asplenium marinum. Clevedon, Weston-super-Mare, upon rocks near the sea but not general, *T. B. Flower*; on rocks between Portshhead and Clevedon, *G. H. K. Thwaites*; in a cave on a rocky beach near Clevedon, *Leo. H. Grindon*.

Asplenium Ruta-muraria. (Dr. Southby), *H. C. Watson*; distributed throughout the county, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant on rocks and walls in the vicinity of Bristol, *G. H. K. Thwaites*; old walls at Ashton, and in Leigh woods, *Leo. H. Grindon*.

Asplenium Trichomanes. (Dr. Southby), *H. C. Watson*; with the above, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant in the vicinity of Bristol, *G. H. K. Thwaites*; old walls at Ashton, and in Leigh woods, *Leo. H. Grindon*.

Asplenium septentrionale. Rocks on the south side of Blackford hill, plentifully, Mr. Brown, *Turner and Dillwyn*; in abundance on stone walls near Glenthorne, about six miles from the boundary of Devon, *N. Ward, jun.*; Glenthorne, (W. S. Hore to S. P. Woodward), *H. C. Watson*.

Scolopendrium vulgare. (Dr. Southby), *H. C. Watson*; frequent throughout the county, *T. B. Flower*; common near Bath, *C. C. Babington*; abundant near Bristol, *G. H. K. Thwaites*; hedge-banks and walls, very fine; sea-bank at Clevedon, *Leo. H. Grindon*. Var. β . *crispum*. Generally distributed, but perhaps not quite so frequent as the above, *T. B. Flower*.

Ceterach officinarum. Cheddar cliffs; on the rocks of carboniferous limestone at Brean down, *E. Lees*; (Dr. Southby); St. Vincent's rocks (*G. H. K. Thwaites* to Bot. Soc. Lond.), *H. C. Watson*, *John*

Harris, jun., C. C. Babington; commonly distributed throughout the county, on rocks and old walls, *T. B. Flower*; abundant on rocks in Leigh woods, and very common on walls in the vicinity of Bristol, *G. H. K. Thwaites*; Leigh woods, old walls about Ashton, Tickenham and Clevedon, exceedingly luxuriant, *Leo. H. Grindon*.

Hymenophyllum Tunbridgense. In a shady lane near Shipton-Mallet, Sole's M.S. Flora of the county of Somerset, *T. B. Flower*.

Osmunda regalis. (Dr. Southby), *H. C. Watson*; Glastonbury, Wedmore and Burtle moors; it has also been mentioned as growing in Leigh woods, Bristol, but I have not been able to detect it, and the situation does not appear favourable for its growth, *T. B. Flower*; Glastonbury and Burtle turf-moors Mr. Sole, *Turner and Dillwyn*.

Botrychium Lunaria. Bath, Shirehampton near Bristol, but sparingly, *T. B. Flower*; field between the lane leading from Bath to Claverton and the farm-house on the down (Dr. Alexander), *C. C. Babington*; commons and waste lands in divers parts of the county (Mr. Sole), *Turner and Dillwyn*.

Ophioglossum vulgatum. (Dr. Southby), *H. C. Watson*; frequent throughout the county in boggy ground, *T. B. Flower*; near Bath, *C. C. Babington*.

Lycopodium clavatum. (Dr. Southby), on Exmoor near Linton, *H. C. Watson*; Clevedon, in one locality, *Leo. H. Grindon*.

Lycopodium alpinum. (Dr. Southby), *H. C. Watson*.

Lycopodium Selago. (Dr. Southby), *H. C. Watson*.

Pilularia globulifera. Wet places on Black and Maiden downs, (Mr. Sole), *Turner and Dillwyn*.

Equisetum hyemale. Canal bank, Bath (Dr. Davis), *C. C. Babington*.

Equisetum arvense. (Dr. Southby), *H. C. Watson*; Bath, Bristol, and in fact variously distributed, more or less, *T. B. Flower*; in the Canal and Brass-knocker woods near Bath, *C. C. Babington*. A variety of this occurs with the branches very generally compound, in Marshfield lane, near Bath, *C. C. Babington*, *T. B. Flower*.

Equisetum Telmateia. (Dr. Southby), *H. C. Watson*; generally distributed more or less, *T. B. Flower*; near Bath, *C. C. Babington*. A variety of this also occurs, with the branches compound, in company with the above, *T. B. Flower*.

Equisetum palustre. (Dr. Southby), *H. C. Watson*; not very generally distributed, *T. B. Flower*, *C. C. Babington*. A variety of this occurs in Marshfield lane, near Bath, with each simple branch bearing a small catkin, *T. B. Flower*.

Equisetum fluviatile. (Dr. Southby), *H. C. Watson*. Bath, Em-

brough ponds, but by no means general, as far as I have observed, *T. B. Flower*.

Equisetum sylvaticum. (Dr. Southby), *H. C. Watson*; not very generally distributed, *T. B. Flower*: Batheaston (Miss Lonsdale), *C. C. Babington*.

EDWARD NEWMAN.

(To be continued).

ART. CCXVI.—*Varieties*.

472. *List of Agarics found near Hitchin*. I send you the following list of Agarics found within five miles of Hitchin, in Hertfordshire, thinking it may be interesting to some of your readers, and invite some interesting correspondence on the subject, as well as perhaps induce some of your correspondents to furnish similar lists from their own neighbourhood. The nomenclature is that of the 'British Flora.' Coloured drawings from fresh specimens have been taken of all except those marked with an asterisk. I hope to furnish a more extended list of the other genera of this greatly diversified order at a future time.

<i>Agaricus phalloides</i>	<i>Agaricus fumosus</i>	<i>Agaricus epiphyllus</i>
* <i>vaginatus</i>	* <i>candicans</i>	<i>Hudsoni</i>
<i>muscarius</i>	* <i>dealbatus</i>	<i>alcalinus</i>
<i>procerus</i>	<i>pratensis</i>	<i>galericulatus</i>
<i>excoriatus</i>	<i>virgineus</i>	<i>polygrammus</i>
<i>cristatus</i>	<i>psittacinus</i>	<i>strobilinus</i>
<i>granulosus</i>	<i>conicus</i>	<i>purus</i>
<i>melleus</i>	<i>coccineus</i>	<i>lacteus</i>
<i>cerasinus</i>	<i>laccatus</i>	<i>stylobatus</i>
<i>fulvus</i>	<i>sulphureus</i>	<i>tenerrimus</i>
<i>rutilans</i>	<i>radicatus</i>	<i>epipterygius</i>
<i>multiformis</i>	<i>velutipes</i>	<i>camptophyllus</i>
<i>personatus</i>	<i>fusipes</i>	<i>corticola</i>
<i>emeticus</i>	<i>butyraceus</i>	<i>Fibula</i>
<i>cilicioides</i>	* <i>dryophyllus</i>	<i>umbelliferus</i>
<i>uvidus</i>	<i>peronatus</i>	<i>Campanella</i> , <i>β. badi-</i>
<i>hysginus</i>	<i>oreades</i>	<i>fragrans</i> [pus]
<i>deliciosus</i>	<i>porreus</i>	<i>cyathiformis</i>
* <i>quietus</i>	<i>esculentus</i>	<i>stypticus</i>
<i>subdulcis</i>	<i>tenacellus</i>	<i>pascuus</i>
<i>theiogalus</i>	<i>conigerus</i>	<i>cinnamomeus</i>
* <i>rufus</i>	<i>Clavus</i>	<i>aureus</i>
<i>infundibuliformis</i>	<i>ramealis</i>	<i>squarrosus</i>
<i>giganteus</i>	<i>androsaceus</i>	<i>mutabilis</i>
<i>nebularis</i>	* <i>fœtidus</i>	<i>collinitus</i>

*Agaricus elatus	Agaricus Georgii	Agaricus disseminatus
fastibilis	* campestris	comatus
flavidus	præcox	micaceus
flocculosus	semiglobatus	cinereus
* rimosus	æruginosus	niveus
geophyllus	lachrymabundus	plicatilis
tener	lateritius	* ephemerus
melinoides	fascicularis	glutinosus
involutus	stipatus	rutilus
variabilis	semiovatus	

Wm. Dawson ; Hitchin, February 23, 1844.

473. *Note on the Meetings of the Botanical Society of Edinburgh.* The Edinburgh Botanical Society does continue its meetings, and has had a constant supply of valuable papers. The 3rd part of the Transactions is now printing at Edinburgh, and will conclude the first volume. The commencement of Vol. 2 is also in the press, and will be published in a few months. It will contain papers fully equal to those contained in the former parts. — *C. C. Babington ; St. John's Coll. Cambridge, March 5, 1844.*

[An apology is due to Mr. Babington for the omission of the above note from our April No.; the omission was purely accidental, the letter from which it is an extract having been mislaid. The note refers to an observation on the wrapper of the March No., and is satisfactory inasmuch as it shows that the meetings of the Edinburgh Society are still held; but it does not explain why we have not been favoured with the reports of proceedings at any of the meetings held during the present session.—*Ed.*]

474. *A Word on Worcestershire Botany.* I observe reported in the February No. (Phytol. 875), a notice of a botanical excursion by Mr. S. P. Woodward, in Warwickshire, Worcestershire, &c., which seems to call for a few remarks. I have nothing to say against the Irish observations, where, sensibly enough, Mr. W. says he “took Mr. Newman’s ‘Irish Notes’ in his hand,” and had Dr. Taylor as a guide. Now if he had acted on the same principle throughout his journey, surely his botanical notes would not have been so meager respecting Worcestershire, more especially as he was near good sporting-covers, *had he but known it.* If a botanist, professedly travelling for scientific purposes, will make no enquiries, and take no note as to what has been previously done in the district he is reviewing, how can he expect that his nose only will guide him to the most favourable localities? I mention this as a hint to all collecting botanists, and not only to Mr. W. This gentleman states that he spent a week in Worcestershire, but it “afforded him very little scope for botanizing, the interest of the country being chiefly geological.” He mentions being at Kidderminster, where the returns were *nil*; but why not have pro-

gressed to Bewdley forest, only five or six miles from thence, where the curious *Pyrus domestica* grows, and where *Geranium sylvaticum* and *Epipactis ensifolia* occur in profusion? Here also he might have met with *Rubus suberectus* and *R. saxatilis*, to say nothing of many ferns. The Clent Hills between Kidderminster and Stourbridge, Mr. W. says "have *no rills or ponds*," and "are *entirely* destitute of ferns." Surely this is much too sweeping an observation. I have not been very lately to the Clent hills, so cannot say whether or not every fern has now disappeared; but I happen to have by me a written note, made on the spot, as to the existence of *water* there: and I would not mind undertaking to produce at least half a dozen species of ferns from the same vicinity, if the onus were laid upon me to do so. My note says,—"The Clent hills consist of several green undulating eminences, now all enclosed, stretching from N.E. by N. to S.E. by S., insulated from each other by longitudinal valleys winding from west to east. The two principal hills are Clent proper and Walton, the latter of which, being the highest, I found by barometrical observation to be 875 feet in altitude. The principal valley is that between Clent and Walton hills. *A stream gushes along it*, passing out to the west near Clent church, and finally emptying itself into the Stour." But oddly enough, if *my* testimony is insufficient, the 'Saxon Chronicle' tells us that at "Cowdale in Clent," a *spring of water* gushed out of the ground at the spot where Prince Kenelm, only son of Kenulph, King of Mercia, was basely murdered in 819, at the instigation of his villanous sister Quendrida, whose "ugly mug," with horrible grinning teeth, yet appears on the wall of St. Kenelm's chapel, a short distance eastward of Clent hill. *A spring of water actually now arises* on the east side of this chapel, forming a small stream that descends into a woody dingle, where I recollect observing in profusion *Adoxa moschatellina* and *Chrysosplenium alternifolium*, so often companions of each other. But not to forget St. Kenelm and the miraculous spring of water, so strangely lost sight of by Mr. W. One might have rested satisfied that the spring now rising in St. Kenelm's chapel-yard, was the identical holy spring of the Saxon Chronicle; but fortunately for our present purpose, we get another draught of cold water by the aid of Mr. Scott's 'History of Stourbridge,' who, at p. 292, tells us that at the distance of less than a mile southward of the chapel, "a most beautiful chrystal fountain arises," which, *he* kindly suggests, is the "real original" miraculous fountain owing its rise to poor Prince Kenelm's murder! However this may be, I trust I have obtained a trifling sprinkling at least for the arid

Clent hills, which future botanical rambles will do well to avail themselves of. Mr. W. mentions the Rubery-hill, "flanking the Bromsgrove Lickey;" but if he had stepped on two miles farther, to the Bromsgrove Lickey itself, he might have perceived one of the most interesting localities for Worcestershire plants, and almost the only spot in the county whose Botany has anything of a subalpine character — gloomy hills black to their very summits with bushy plants of *Calluna vulgaris*, interspersed with *Erica cinerea* and *Tetralix*, woods filled to repletion with *Vaccinium Myrtillus*, and bogs containing *Narthecium ossifragum*, *Vaccinium Oxycoccos*, *Melica cærulea* and the *Eriophori*. *Rubus hirtus* and *affinis* also form bushes upon the summit of the Beacon-hill, and *Juncus squarrosus* is abundant, while most of these plants are absent from the Malvern range. There is surely no want of water here, and *Lastræa dilatata* grows most magnificently in the damp ravines, with a bilobated variety of *Grammitis Ceterach*, *Athyrium Filix-femina*, and other ferns. I could easily mention several other favourable boggy localities near Kidderminster and Stourport, where various *Carices* and rare plants grow. But I have no wish to repress the energies of any enquirer, and only think it right to hint to young botanists, that due enquiry should be first made before it is too confidently set down that ferns and water are entirely absent from any ranges of hills, though at the time perhaps both may be within a stone's throw of the observer, had his local knowledge enabled him to reach them.—*Edwin Lees; Powick, Worcestershire, April 4, 1844.*

475. *Note on some localities in Mr. W. Gardiner's List*, (Phytol. 915). In the last number of 'The Phytologist' Mr. Gardiner of Dundee, a very zealous and enthusiastic botanist, gives some localities for rare Scotch plants which he collected in 1843. Among these he notices what he calls *new* stations for *Lychnis viscaria* and *Carex rariflora*. The localities however have been known for some time. I gathered the former in Craighall woods in August, 1829, and gave specimens to Dr. Graham and other botanists in Edinburgh. In another part of the same woods, I picked *Convallaria verticillata* and *Neottia Nidus-avis*. *Carex rariflora* was seen by Dr. Greville, Mr. Brand and myself, in a bog above Caness, in August, 1837. — Along the sides of the stream running into Caness, we gathered at the same time profusion of *Phleum alpinum*, *Alopecurus alpinus* and *Carex aquatilis*. I think the station was noticed in Dr. Greville's report of the excursion, read before the Botanical Society of Edinburgh; at all events, specimens were distributed from this locality.

I have no doubt however that Mr. Gardiner gathered the plants in these localities, without any knowledge of what had been done by others, and he deserves credit for the careful manner in which he has examined our alpine Flora. The other phanerogamous plants mentioned in Mr. G.'s list were picked in stations well known to all those who have botanized in the rich districts of Clova and Glen Isla, more especially to such as have accompanied Prof. Graham in his delightful excursions. A notice of most of them will be seen in the reports published by Dr. Graham in the 'Edinburgh Philosophical Journal.' I am glad to see that Mr. Gardiner found *Alopecurus alpinus* in profusion in the old station near Loch Dharval.—*J. H. Balfour; Glasgow, April 9, 1844.*

476. *Corrections of some errors in Mr. Gardiner's List of Plants.* My friend Professor Balfour has pointed out to me my mistake in supposing the stations for *Lychnis viscaria* and *Carex rariflora* (Phytol. 915-16) to be *new*, and I therefore gladly embrace the earliest opportunity of correcting it. I was perfectly unaware of these stations being previously known, and shall always be exceedingly thankful for any such corrections. For *Caulochen*, passim, read *Canlochen*. P. 917, line 6, for *Didymodon inclinatus Sm.* read *Sw.*; line 13, for *Carlownie*, read *Carlowie*. The specimen supposed to be *Cetraria juniperina* has turned out to be only a young state of *Parmelia caperata*. *Wm. Gardiner; Dundee, April, 1844.*

477. *The Sidlaw-hills.* In an excursion to the Sidlaw-hills the other day, I had the pleasure of gathering *Buxbaumia aphylla* for about the tenth time; also *Grimmia Doniana*, *Diphyscium foliosum*, *Zygodon Mougeotia*, *Jungermannia cordifolia*, *Stereocaulon paschale*, and various other good things. *Empetrum nigrum* was in flower. *Id.*

478. *Remarks on the London List of British Plants.* In the new London Catalogue of British Plants, we have what has been long wanted, a list arranged according to the natural system, and gratitude is due from all botanists to the gentlemen who have been instrumental in publishing it. But how is it, that after having the nomenclature of our native plants completely revolutionized by the Edinburgh Society's list, which was to make our names agree with the continental ones, and set all errors to rights, — how is it, I ask, that we now have so curious a compromise between the new and the old nomenclatures? For while (to students of Smith and Hooker) *Equisetum fluviatile* appears under the name of *E. Telmateia*, *Carex cæspitosa* under that of *Goodenovii*, and *Orobis sylvaticus* of *Vicia Orobis*; *Arrhenatherum avenaceum*, on the other hand, returns to *Avena elatior*; the genus

Arundo is restored *vice* Calamagrostis and Phragmites; Alsine and Mœhringia degenerate into Arenaria; and sundry species of Erucastrium, Brassica and Diplotaxis revert to venerable Sinapis. These are only two or three instances taken at random to illustrate the "restoration." In the next place it appears that after all the wise ones were wrong in making species of Erythræa latifolia, pulchella and littoralis; of Carex irrigua; of Cochlearia anglica, danica and grœnlandica; of Senecio aquaticus, Habenaria chlorantha, sundry Atriplices, and a host of other plants, exalted only to be abased: for all these appear in the London Catalogue as varieties. Surely Carex Oederi is a good species! Surely Prunus insititia and domestica are something more than varieties of P. spinosa! And wherein have failed Stachys ambigua, Juncus conglomeratus and effusus, Avena alpina and paniculmis, that they should have no claim to numbers? Their claim to specific distinction seems to have been transferred to Fedia eriocarpa, Ranunculus circinatus &c., and Ajuga alpina is gone altogether. Would it not have been an improvement if a few synonymes had been introduced? Is Carex glauca of the list what we have latterly called C. recurva? Is Glyceria loliacea the plant which has at different times borne the generic names of Triticum and Sclerochloa? Without a good library we shall have to use plenty of guess-work in checking off our possessions. In the next place I am anxious to know how long a residence in this country is necessary before a plant becomes "sufficiently naturalized"? Mimulus luteus, Eranthis hiemalis, Lilium Martagon &c. are admitted, while Oxalis stricta, Erica carnea, Linaria purpurea &c. are excluded. The distinction between the two species of Impatiens is nicely discriminated; Noli-me-tangere is held to be truly wild because included in three Floras, fulva is introduced because not found in one of the twenty. Moreover, if the doubtfully native plants are to be marked at all, why not have made the list of them *perfect*, instead of leaving it incomplete, as avowed at p. 15? The result is, that we are very little wiser than before, as it is impossible to know which of the remainder "ought to have been" marked by the compilers. We are told that Viola odorata, Cheiranthus Cheiri, Crocus nudiflorus and the Vincas are not wild, but are professedly left in the dark as to Sisymbrium Irio, Chelidonium majus, and other introduced species. And when plants have been found only once or twice, or the *known* habitat is destroyed, is that a reason why they should afterwards be excluded from our lists, as is done in the London Catalogue with Eriophorum alpinum, Carex Davalliana, Potentilla alba, Bromus arvensis, &c.? On the same principle surely Con-

vallaria bifolia, Cypripedium Calceolus, Cyclamen hederifolium, &c. should have been expelled to the cover. If such a plan is persevered in, we shall never know what to consider as our really native though very rare plants.—*Joseph Sidebotham ; Manchester, April 19, 1844.*

[We gladly give insertion to the above remarks of Mr. Sidebotham, not because they are strictures on the extensive changes in nomenclature introduced into the Catalogue of the London Botanical Society, but because they refer to a subject of vital importance to the science of Botany. Every botanist must see how greatly to be desired is a uniform nomenclature; and to this desirable end should the efforts of all cultivators of the science be strenuously and unanimously directed. But this object can never be attained so long as those who ought to be considered authorities follow each their own path. Some of the changes complained of by Mr. Sidebotham, did not, however, originate with the London Botanical Society; their adoption of some of these changes we entirely approve of, nor can we help wishing that in some things they had gone a little further. For instance, the substitution of *Equisetum Telmateia* for *fluviatile* was proposed by Mr. Newman in our own pages (Phytol. 721), and this change has been adopted by the compilers of the London Catalogue; but why did they not restore the rejected name *fluviatile* to what we consider its legitimate position, as the appellation of the species still standing in the list as *E. limosum*? *Carex glauca* again is merely a restoration of a prior name to the plant named *recurva* by Hudson, and is adopted from Mr. Babington's Manual. Restorations of this nature, where the right of priority can be determined and is adhered to, we can never quarrel with. The compilers of the Edinburgh Catalogue thought it necessary to explain certain changes introduced into their list; perhaps the compilers of the London Catalogue may think it right to adopt the same course: if so, we shall be happy to admit their explanations into our pages. We shall also be glad to receive communications from our correspondents on the subject of nomenclature. By the way, we may take this opportunity of observing that we are convinced there is still room for a catalogue of British plants, with all their synonymes from the time of Linnæus, on the plan of Steudel's excellent 'Nomenclator,' which indeed should form the basis of the new British catalogue: this, if properly executed, would be a boon to our working botanists.—*Ed.*]

479. *Note on Primula elatior.* On the 17th instant I accompanied Mr. Borrer to Great Bardfield, Essex, to gather the true *Primula elatior*, where it was found by Mr. Henry Doubleday, (Phytol. 204).—On our way from the railway-station, Mr. Borrer fortunately espied it in a wet hilly pasture on the left of the road from Bishop's Stortford to Takeley, between the two-mile-stone and Thremhale Priory. We alighted of course, and entering the field, we observed it in greater abundance than in the meadow near the bridge over the Pant at Great Bardfield, although not quite so luxuriant. This plant has been frequently overlooked or confounded with *Primula vulgaris*, β . (*Smith*), Mr. Babington's β . *umbellata*, which is beautifully figured in Hooker's continuation of Curtis's 'Flora Londinensis' under the name of *Primula elatior*. Sir J. E. Smith was evidently acquainted with both,

and has well distinguished them; the accurate figure in 'English Botany' of *Primula elatior*, was communicated by the Rev. Mr. Hemsted, from whence does not appear. Mr. Hewett C. Watson (Phytol. 232) is decidedly right in saying that the Bardfield plant is the species intended to be figured in 'English Botany' (513), and is identical with Swiss and German specimens; I have a plant growing, and now in full flower, which was received from Belgium, exactly corresponding. It is probable that Ray did not distinguish the two plants, and that his "in sylvis & ad sepes non admodum infrequens" belongs to *P. vulgaris*, β ., and "interdum & in pascua descendit" to *P. elatior*. His synonyme "*Paralysis altera odorata flore pallido polyanthos*," — "The Primrose Cowslip," Parkinson's Paradise, 244, I think belongs to *P. elatior*. I suppose both are called Oxlips in most counties: in Essex I know they are indiscriminately cowslips, the *Primula veris* being invariably pagils.—*Edward Forster; Woodford, April 23, 1844.*

480. *Note on the Bardfield Oxlip.* Thinking it might interest you to see a few of the oxlips which I have raised from seed collected at Bardfield in 1842, I send some in a box. I am quite convinced it is a really distinct species, as out of at least five hundred that have flowered, there is no variation from the old plants, nothing like a primrose or cowslip amongst them. They all droop.—*Henry Doubleday; Epping, April 25, 1844.*

[True indeed to their parental type are the beautiful descendants of the Bardfield oxlip which we have just received from our kind correspondent Mr. H. Doubleday. We have long felt convinced that the Bardfield plants belong to a perfectly distinct species — the *Primula elatior* of Jacquin; and now, had a doubt remained, it must have been dispelled by the specimens just received, for which we tender our best thanks to Mr. Doubleday. It is not a little strange that this plant should be confined, as it apparently is, to a few localities in Essex.—*Ed.*]

481. *Note on Cerastium semidecandrum and tetrandrum.* Enclosed are some specimens of *Cerastium semidecandrum* and *tetrandrum*. They grow together plentifully on the drier parts of our dunes, and equally abundantly. The tetrandrous plants may be readily distinguished at a passing glance among the patches in which they grow, by a more robust appearance and larger flowers; but as to the specific characters given in 'British Flora,' 3rd edition, I have not access to a later), I think you will find in *C. semidecandrum* the calyx more taper-pointed, the petals not more deeply cloven, but the calyx margins perhaps more membranaceous than in the tetrandrous plant. — *J. P. Priest; Great Yarmouth, April 11, 1844.*

482. *On the Ascent and Circulation of the Sap in Plants.* At a recent meeting of the Royal Society were read, "Some further Obser-

vations and Experiments illustrative of the Cause of the Ascent and continued Motion of the Sap,' in continuation of a paper presented November 1842, by G. Rainey, Esq. — The author here gives an account of some experiments which he has lately made, tending, in his opinion, to corroborate the opinions he advanced in his former paper; namely, that the ascending sap is situate in the intercellular and intervacular spaces of the plant, and that its passage into the cells is effected by the action of endosmose, which the intervening membranes whether living, or deprived of vitality, exert upon that fluid. He found that portions of many plants, such as *Anthriscus vulgaris* and the *Lapsana communis*, absorb a much larger quantity of fluid when they are immersed in pure water, than when similarly immersed in a solution of gum-arabic: and that, in the latter case, the remaining portion of the solution is of the same specific gravity as before any part has been absorbed by the plant. By a similar process the author conceives the fluid which is derived from the earth, and has passed into the intercellular spaces of the cotyledons, are imbibed by its cells by endosmose; while at the same time a fluid containing sugar is passing, by exosmose, out of these cells into the intercellular and intervacular tissue, and thence into the corresponding tissue of the peduncle and young stem; it there meets with, and is diluted by the water ascending in the same tissue from the roots, and the mixture is afterwards distributed over every part of the plant."—*Athenæum*, April 10, 1844.

ART. CCXVII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

April 12, 1844. — John Reynolds, Esq., Treasurer, in the chair. Various donations were announced, including a very large collection of East Indian plants, presented by the Royal Horticultural Society of Cornwall. Mr. D. Moore, of the Dublin Botanic garden, presented numerous specimens of *Carex paradoxa* (*Willd.*), collected in Ireland. Mr. W. L. Notcutt presented many duplicates of *Statice rariflora* (*Dreger*), collected in Hants. Various other specimens were presented for the Society's herbarium, in illustration of the varieties recorded in the 'London Catalogue of British Plants.'

Read, 'A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks (Part 2)': by E. Lees, Esq., F.L.S. The paper was accompanied by drawings and specimens.—*G. E. D.*

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ART. CCXVIII. — *Further Remarks on Botanical Classification.*

By THOMAS EDMONSTON, JUN., Esq.

Aberdeen, April, 1844.

SIR,

I beg to trouble you with a few remarks on Dr. Ayres's letter (Phytol. 885), replying to my former paper, (Id. 759).

Dr. A. seems, in the first instance, to have quite misunderstood my meaning in objecting to the abandonment of the Linnæan system; if he keeps in view my primary proposition, that an artificial scheme is necessary to the *beginner*, he will find that much of his reasoning is thrown away, and that not seldom he is arguing in parallel lines with myself. I never objected to the "natural" system as a *part of the study of Botany*, and my arguments were mainly intended to show how improper a system it is for a student. Bearing this in mind, I shall shortly examine the value of some of Dr. Ayres's vindications.

In the first place, I confess I can see little analogy between the Linnæan system and an "index," to which Dr. A. is pleased to liken it. By an index we ascertain indeed the name of any article we are wishing to find in a bulky encyclopædia or other book, but nothing more. Will Dr. Ayres say that after we have, by the aid of the Linnæan system, acquired the knowledge of the name of a plant, we still know nothing of that plant? Must we not first ascertain the number and position of its stamens, then the character of its calyx, corolla, fruit &c., next of its root, leaves, inflorescence, &c.; and all this before we can know the name? And from the first step, the ascertaining of its class, we are continuing to acquire information regarding the structure of the plant. The "natural" botanists wish to be in a great hurry, teaching the student all about the plant at the outset, and making him learn at first what he would far better become acquainted with at a later stage of his progress; in short, in homely phrase, "putting the cart before the horse." If a Linnean botanist were to say to the student, "You must find out the number and position of the stamens and pistils of that plant, but don't stir a step further, as you reverence the memory of him of Upsala; all you have to do is to know that such a plant belongs to Pentandria, Monogynia, you have no

concern with anything else :”—then indeed “stale and unprofitable” would be the information gained ; but can we disconnect the knowing the class and order from knowing the genus and species ? The one is a means to the other, and is valueless by itself. The simple difference between the *modus operandi* of the two systems is this ; by the Linnæan you are conducted by easy stages to the knowledge of the species, by the other you are immediately, or nearly so, brought into contact with what should have been your last step.

Dr. Ayres seems to ground his defence of the natural system on a most extraordinary hypothesis, viz., the assumption that all the abstractions we term classes, orders, genera, &c., have as much a “local habitation and a name” as the abstraction we term species, and he doubtless thinks himself triumphant in naming them all “inductions from individuals ;” Dr. Ayres at the same time, however, makes mention of the particular point in which species differ from every other “induction,” namely, their “capability of propagating their like.” Is not *this* an essential difference from all other inductions ? Do genera, or classes, or orders, “propagate their like ?” What sort of a *hybrid* would the two abstractions Ranunculaceæ and Cruciferae produce ? Yet if they are all alike inductions from a beginning, then they must all have analogous properties, and two genera, or two orders, must produce hybrids, and “propagate their like” in the same way as two species. It is obvious to every unprejudiced mind, that Nature *has* created individuals having certain common peculiarities which no other induction from individuals possesses, and to these we give the name of *species*. Where the line is drawn we cannot often tell, and wofully shall we find philology to fail us in endeavouring to thread the mysterious mazes of Nature’s labyrinth. We must be content to descend from the high pinnacle of metaphysics, and take the more homely guidance of experience and analogy, in viewing with our finite and imperfect vision the infinite and perfect works of the Eternal. But a more unfortunate line of argument could scarcely be pitched on for the feasibility of a natural system, than that which alleges that all our groupings have actually an existence in the scheme of Nature. It assumes that every plant has its proper niche, and that there is a regular gradation of affinity between the highest and the lowest forms of vegetable life. Now we are perhaps acquainted with two thirds of the plants on the globe, say three fourths, and in all probability not more are known to science. What a faint and indistinct glimmering of the *true* System of Nature must we have ! How many gaps to be filled up ! How many erroneous affinities to be corrected !

What a "combination of disjointed things" — nay, not only "disjointed," but a system affected with *fragilitas ossium*, where every bone is broken, and nothing to be seen but here a fragment and there a fragment, a little of everything and nothing complete! Can such a dismembered system, such a collection of *debris*, be of any real practical use? I should say no!

Dr. Ayres considers my quotation from Dr. Lindley as "not sufficiently ample." I confess I do not well understand the *two* senses in which a group may be "natural." Dr. A. says "he (Dr. Lindley) implies that Nature has not indeed created species, orders, genera, or other groups, as such, but has imprinted such characters and affinities on plants as enables us to throw them into groups approximating more or less to the scheme of Nature, and in that sense natural." Now this distinction is somewhat too nice for my organs of discrimination: if Nature has indeed formed such a chain of characters and affinities, then we must say that she has formed the groups which are the tangible representatives of these characters. We cannot say that Nature has created a *name*, as a genus or an order, but if she has created the *thing* we represent and understand by the *name*, where is the difference? The word *species* implies a congeries of individuals having certain common peculiarities and distinctions; and when we say "Nature creates species," we mean that she creates individuals having the properties which we attribute to the abstraction—species.

Dr. Ayres wishes to establish the existence of a plan of Nature by asserting that plants possess certain "gradations of affinity," and are connected with each other by "oscillatory groups." It has not been my good fortune to fall in with these regular "gradations of affinities;" and as to "oscillatory groups," the system generally seems affected with a continual "oscillation," and to be never at rest; for, says Dr. Lindley, "the natural orders seldom follow in the same manner in the arrangements of two different botanists." The existence of regular and connected "gradations of affinity" is just the point I dispute, for I conceive they have, in most instances, their being rather in imagination than in fact, and a group is dubbed "natural," and its "affinities" and "transitions" marked out with unerring accuracy forthwith, in which state it remains for perhaps six months, till some other botanist conceives its position "unnatural," and transfers it to some other place, from thence, in turn, to be removed. If the high-flown pretensions of the natural school were realized, and every genus and every species, from the highest to the lowest type of vegetable life had its true place in the scale of being assigned to it, then indeed we

should lay aside the Linnæan system, the “last loved echoes” of Monandria and Diandria would soon die away, and the faint glimmering light of the Swedish botanist be eclipsed by the noon-tide splendour of the “System of Nature.” As, however, unfortunately, this pitch of perfection has not been reached, nor in my opinion ever will, nor *ever can be*, I must take leave to dispute the existence of these “regular gradations of affinity,” and count all systems hitherto propounded as alike remote from the System of Nature. Which must necessarily be the case, for I maintain no such system exists, save in the heated imaginations of some over-enthusiastic followers of this visionary school.

Allow me to ask Dr. Ayres, if one group of plants is defined according to the character of its stamens, and another according to the character of its seeds, are they not both equally “artificial”? We shall find that the latter condition is frequently the case in many “natural” orders, for when their definitions are disencumbered of superfluous matter, their essential characters are as limited as those of the Linnæan system.*

We shall take our former example, Ranunculaceæ, and after rejecting the characters which are either inconsistent, and therefore improper to be introduced into Nature’s own system, or common to other groups, we shall see what a multitude of points the plants referred to agree in. The definition given by Dr. Ayres from Lindley, is, “Polypetalous dicotyledons with hypogynous stamens, anthers bursting by long slits, several distinct simple carpella, exstipulate leaves sheathing at the base, solid albumen and seeds without arillus.” Now all the species are not “polypetalous,” inasmuch as some are *apetalous*,” neither have all the species “several distinct simple carpella,” for in some species the carpels are coherent,—partially in *Nigella* and wholly in *Actæa*. Other orders are, equally with Ranunculaceæ, “dicotyledonous with hypogynous stamens, anthers bursting by long slits, exstipulate leaves sheathing at the base.” Thus the characters drawn from the seeds are the only unexceptionable ones, and the group is manifestly as artificial as if it were characterized from the stamens or any other single part.

* A remarkable instance of this occurs in *Detarium*, a genus of Leguminosæ, which has the icosandrous stamens and drupaceous fruit of Amygdaleæ, and only differs from that order by having compound leaves; so that the latter character is the *only* distinctive one between the two groups Leguminosæ and Amygdaleæ, however unlike the typical species may be.

Let us take two British plants referred to this order, and glance at their points of similarity. The two species may be *Ranunculus Ficaria*, and *Actæa spicata*. In the former, the leaves are simple, the stem single-flowered, the sepals three, the petals nine or ten, and nectariferous at the base, the carpella distinct and ultimately forming single-seeded caryopsides. In *Actæa* the leaves are compound, the stem is many-flowered, the sepals and petals four in number, the latter without nectarium, the carpels single, and the fruit a many-seeded berry.

These two plants are exactly opposite in the character of their leaves, inflorescence, calyx and corolla, and fruit, yet this is a "natural" group! — Its members have such a general and at once apparent resemblance, that they may be immediately recognized; they do not agree in one character only, in a multitude of points are they alike; there is no assemblage of "disjointed things" here, all is the harmony of Nature, the system of Creation!!! We are far from that point, I fear, and botanists will soon perceive what an *ignis fatuus* they are pursuing, and seeing the fallacy of the specious theories and bold pretensions of the natural school, return to the simple and philosophical method of acquiring knowledge in the easiest manner, and without troubling their heads about hunting out "affinities" which have no existence, and "transitions" and "oscillatory groups" which have yet to be formed. Let it be borne in mind that by these remarks I do not mean to say that the "natural" system is or ought to be thrown aside; let it be studied in its proper place, and it will be productive of much and lasting benefit. It can scarcely be otherwise, since it bears the impress of the great minds of a Jussieu, a Brown, a Decandolle, and a Lindley; but let it not be foisted forward where it can only disgust and perplex. What would be thought of a teacher of Algebra, who should put the binomial theorem into the hands of his pupil, while he was yet ignorant of the signs? Yet this is exactly what is recommended by those botanists who wish the natural to supersede the artificial system; they would teach the student complicated theories before he has any knowledge of the plants from a comparison of which these theories are formed: and because certain tribes of plants occur in which *true* natural resemblances exist, they hastily assume that such is *universally* the case: and overlooking the legitimate ends of classification, spend needlessly much time and reasoning in attempting to prove the "thing which is not." Let the artificial and the natural systems proceed *pari passu*; they will never be found to come into contact, but to work in sisterly harmony, each confined to its proper sphere, towards the great end of an increased

knowledge of the boundless and wondrous variety of vegetable life and structure. The "artificial" will not quarrel with the "natural" because it is not and never can be the System of Nature; and the natural will tolerate some sacrifices of evident affinity made to precision and clearness of definition by the artificial. Let botanists also occupy themselves in endeavouring to *improve* the Linnæan system, so as to adapt it to our more extended knowledge, and then I have no hesitation in saying that it will never be laid on the shelf, but will be immortal as the science, or as the memory of the giant mind that framed it.

I remain, Sir,

Your obedient Servant,

THOMAS EDMONSTON, JUN.

To the Editor of 'The Phytologist.'

P.S. — Since the above remarks were penned, I have received the April and May numbers of 'The Phytologist,' in which I am glad to find so able and justly distinguished a supporter as Mr. Forster, as it proves that even among those who hold a high rank as botanists, there are still some who do not consider it imperative on them to "follow the fashion" (as I must still beg leave to call the "natural" system, notwithstanding Dr. Ayres' animadversions on the term). I am unwilling to trespass too largely on your space, and will merely offer one brief remark on Dr. Ayres' second paper. The foregoing will, I trust, explain to him my ideas of the nature of species, of which, as it appears to me, he has taken a far too *transcendental* view. It is needless repeating what has already been said; but if Dr. A. will pardon me, I would beg to suggest the getting rid, as speedily as possible, of these ultra-metaphysical views as applied to Botany, for I am sure a little reflection will convince him of the impossibility of applying the strict rules of logical induction to the boundless and ever-varying phenomena of Nature. With this brief remark I trust that Dr. A. will feel satisfied that the preceding remarks do not leave "untouched the great question of the comparative beauty and utility of the two rival systems."

T. E.

ART. CCXIX. — *List of Flowering Plants found in the neighbourhood of Great Marlow, Bucks, in the early part of the Summer of 1843.* By G. G. MILL, Esq.

THE country about Marlow, in Buckinghamshire, is scarcely if at all known to the botanist; indeed it is very little known to any except those in the immediate neighbourhood, and to a few anglers who visit it from its proximity to the Thames.

After passing three summer months there, and being well repaid, as far as botanical researches went, I think it will probably be interesting to the readers of 'The Phytologist' to have some account of the plants of that neighbourhood.

The plants which grow there are either those of a chalk country, or such as are fond of the banks of rivers and the neighbouring alluvial soil, with the swamps and deep ditches which usually attend it; there are also the plants of wet woods, of which there is no lack in the country, it being composed for the most part of low ranges of thickly-wooded hills.

The plants of which there is a deficiency are such as grow on a sandy or dry gravelly soil, on open heaths, or on wet spongy commons, as will be seen by the following list.

Clematis Vitalba. Hedges, frequent.

Thalictrum flavum. About New Lock and Medmenham abundant, and by the Thames generally.

Ranunculus aquatilis. Ponds &c.

———— *hederaceus.* In ponds on a common by the Oxford road, about half way between Marlow and Stokenchurch.

———— *Flammula.* Cookham-dean, &c.

———— *Lingua.* By the water called the Strand, Cookham.

———— *Ficaria.* Thickets and woods.

———— *auricomus.* Woods.

———— *bulbosus.* By road-sides occasionally.

———— *sceleratus.* By the sides of ponds.

———— *arvensis.* Fields on both sides of the Wycombe road, about two miles from Marlow, very abundantly, and elsewhere.

———— *parviflorus.* On the left bank of the Oxford road, immediately out of the town.

Caltha palustris. By the river, frequent.

Aquilegia vulgaris. Bisham wood, and moist woods generally.

Nymphæa alba and *Nuphar lutea*. Thames near Temple, &c.

Papaver Argemone and *Rhœas*. Corn-fields, frequent.

——— *dubium*. Walls and banks near the town, &c.

Chelidonium majus. Road-sides, Bisham wood by Winter hill.

Nasturtium officinale. Ditches and ponds.

——— *amphibium*. Banks of the river &c. frequent.

——— *terrestre*. By the sides of ponds.

Turritis glabra. In a coppice at the top of Cookham down, extremely plentiful.

Arabis hirsuta. On the bank of the lane which turns off from the Little Marlow road opposite Sir G. Nugent's, about two miles up the lane, sparingly.

Sisymbrium officinale and *Alliaria officinalis*. Frequent.

Brassica campestris. Abundant by the Thames.

Sinapis arvensis. This plant grows but sparingly in this neighbourhood, being replaced by *S. alba*, which abounds everywhere.

Thlaspi arvense. Common fields opposite Bisham wood, abundantly.

Iberis amara. This is a common plant in the corn-fields about Marlow; it grows most profusely in a wood overhanging the Henley road at Medmenham.

Raphanus Raphanistrum. Corn-fields, abundant.

Reseda lutea. Fields between the Oxford and Wycombe roads &c.

——— *Luteola*. Chalk-pits, Medmenham &c.

Helianthemum vulgare. On the chalk, abundant.

Polygala vulgaris. Very common on the chalk.

Dianthus Armeria. By the side of the Henley road, Hambledon, also by the Little Marlow road by Sir G. Nugent's.

Lychnis Flos-cuculi. Wet meadows, frequent.

——— *vespertina* (dioica β .) and *diurna* (dioica).

——— *Githago*. Common fields opposite Bisham woods &c.

Sagina procumbens and *apetala*.

Spergula nodosa. Winter hill and Cookham down.

——— *arvensis*. Corn-fields.

Stellaria holostea. Hedges.

——— *glauca*. By the side of the deep ditch which bounds the meadow immediately above the suspension bridge.

——— *graminea*. Dry places, frequent.

Malachium aquaticum. Wet places by the river.

Arenaria serpyllifolia. Walls, frequent.

Malva moschata. Fields to the left of the Wycombe road just beyond the town.

—— *sylvestris* and *rotundifolia*. Under walls and by road-sides.

Hypericum Androsæum. At the top of Bisham wood, and in moist woods, generally.

—— *quadrangulum*. By the river side and the sides of ditches occasionally.

—— *perforatum*. Very common.

—— *humifusum*. On a little common to the right of the Wycombe road, also on the terrace of Sir W. Clayton's.

—— *hirsutum*. Common.

—— *montanum*. Woods south-east of Marlow common; woods between the Wycombe and Oxford roads &c.

—— *pulchrum*. Frequent in dry places.

Acer campestre. Hedges.

Geranium pratense. Banks of the river abundantly.

—— *pyrenaicum*. Not very common.

—— *pusillum*. Common.

—— *dissectum*. By road-sides &c. frequent.

—— *columbinum*.

—— *molle*. Frequent.

—— *lucidum*. On the bank of a lane turning out of the Little Marlow road, on the left, beyond Little Marlow; it grows not far from the main road.

—— *robertianum*. Lanes &c.

Linum catharticum. Winter hill &c.

Oxalis Acetosella. In all the woods.

Euonymus europæus. Bisham wood and hedges generally.

Ulex europæus. Little common about two miles from Marlow, on the Wycombe road.

Genista anglica. Cookham down.

Ononis arvensis. Occasionally.

Anthyllis vulneraria. In two or three places on the chalk.

Melilotus officinalis. New Lock.

Trifolium arvense. Little hollow opposite Sir G. Nugent's.

—— *pratense*, *repens*, *procumbens*, *filiforme*.

Lotus corniculatus and *major*.

Astragalus glycyphyllos. In the thicket on the right hand side of the road from Hedsor to Clifden, about half way up the ascent to Clifden, growing very luxuriantly.

Vicia hirsuta and *tetrasperma*. In a lane leading from the Henley road to King's farm, and in the road which overhangs the farm.

—— *Cracca, sepium* and *sativa*. Frequent.

Lathyrus pratensis. Bisham wood &c.

Orobis tuberosus. Woods &c.

Spiræa Ulmaria. Wet meadows by the river.

—— *Filipendula*. Meadow by the river between Bisham wood and the town, abundant.

Geum urbanum.

Poterium Sanguisorba. In dry places.

Agrimonia Eupatoria. Road-sides.

Alchemilla vulgaris. In woods north-west of Marlow, beyond Marlow-common.

—— *arvensis*. Frequent.

Potentilla anserina, argentea, reptans, Tormentilla.

Fragaria vesca. Woods, frequent.

Rubus Idæus. On Marlow-common and in the wood to the right.

—— *cæsius*. Bisham wood.

Rosa rubiginosa. In hedges about Wycombe, on the Marlow side.

—— *canina*. Hedges, frequent.

—— *arvensis*. On the borders of woods &c. but not nearly so frequent as the former.

Pyrus Malus. Hedges occasionally.

—— *Aria*. Bisham wood &c. very abundant in the neighbourhood.

Lythrum Salicaria. Banks of the Thames, abundant.

Epilobium angustifolium. In the wood of Harleyford, in great profusion; also in Bisham wood, but sparingly.

—— *hirsutum*. Banks of the Thames, abundant.

—— *parviflorum*. Wet places.

—— *montanum*. Very common.

—— *tetragonum*. Bisham wood.

Circeæ Lutetiana. Woods.

Myriophyllum verticillatum. There are few ditches or ponds about Marlow which do not produce this plant; it grows more especially, however, in the deep ditches above the suspension bridge; also copiously in the wood by Sir W. Clayton's park near the house, as well as in a little pond in the middle of a field immediately under Bisham wood, about half way between the river and the Maidenhead road.

—— *spicatum*. Much less common than the former; it

only grows, I believe, in the shallow ponds on Cookham dean, at the top of Bisham wood.

Bryonia dioica. Common in the hedges.

Scleranthus annuus. Common in corn-fields about Maidenhead.

Sedum Telephium. In a lane between the Oxford road and hills on the left, a little way out of the town; also very abundantly in the first lane turning out of the Little Marlow road on the left, beyond Little Marlow.

— *acre*. Walls &c.

Ribes Grossularia. Bisham wood, and on the Wycombe road about two miles from Wycombe.

Saxifraga tridactylites. Wall by the village of Hurley.

Sanicula europæa. Woods.

Helosciadium nodiflorum. Ponds, frequent.

Ægopodium Podagraria. Under hedges near houses.

Bunium flexuosum. Stokenchurch woods.

Sium latifolium. This plant grows abundantly in the largest pond at the foot of Cookham down; also in the river at the foot of Clifden sparingly; and by the side of the deep ditch before mentioned, above the suspension bridge.

— *angustifolium*. Grows in the same ditch with *S. latifolium*, above the bridge.

Ænanthe fistulosa. In the pond of Sir W. Clayton's, near the house, and in ponds at the foot of Cookham down.

———— *crocata* and *Phellandrium*. Ponds at the foot of Cookham down, &c.

Æthusa Cynapium. Common.

Silva pratensis. By the side of the river opposite Temple; also very abundant in the meadows about Cookham and under Bisham wood.

Angelica sylvestris. By the banks of the river.

Pastinaca sativa. Common.

Heracleum Sphondylium. Very common.

Daucus Carota.

Torilis infesta. Corn-fields, frequent.

— *nodosa*. Under a wall by the side of the river near Hambleton; also on Cookham green, and in a field on the right of the Wycombe road, at the first descent.

Scandix Pecten-Veneris. Corn-fields, everywhere.

Anthriscus vulgaris.

Conium maculatum. Exceedingly fine by the river at New Lock; and at Clifden.

- Adoxa moschatellina*. Woods beyond Marlow common.
Cornus sanguinea. Hedges frequent.
Viburnum Lantana. Hedges, Bisham wood, &c.
 ——— *Opulus*. Bisham wood, &c.
Lonicera Periclymenum. Hedges &c.
Sherardia arvensis. Corn-fields.
Asperula Cynanchica. Foot of Winter hill, by the path; Medmenham, very fine, and by the banks of the road from Maidenhead to Henley.
 ——— *odorata*. In all the woods, abundant.
Galium cruciatum. Banks by the Oxford road; Bisham wood &c.
 ——— *palustre*. Wet places.
 ——— *Mollugo*. Frequent.
 ——— *verum*. Road-sides.
 ——— *saxatile*. Commons.
 ——— *uliginosum*. Wet places.
 ——— *Aparine*. Everywhere.
Valeriana officinalis. In wet places near the river abundantly.
 ——— *dioica*. About Medmenham.
Valerianella olitoria. Corn-fields, frequent.
 ——— *dentata*. Corn-fields at Clifden, &c.
Dipsacus sylvestris.
Knautia arvensis. Frequent.
Scabiosa succisa.
 ——— *Columbaria*. By the road-side, Medmenham.
Eupatorium Cannabinum. By the banks of the river abundantly.
Petasites vulgaris and *Tussilago Farfara*.
Erigeron acris. In dry places.
Inula Conyza. New Lock, &c.
Pulicaria dysenterica. Wet places.
Achillæa Ptarmica. By the river side.
 ——— *Millefolium*. Frequent.
Chrysanthemum Leucanthemum and *segetum*. The latter a most luxuriant weed in the fields on the Henley and Maidenhead road near Hurley.
Pyrethrum Parthenium.
Artemisia vulgaris. Common.
Filago germanica, *minima*, and *Gnaphalium uliginosum*.
Senecio erucæfolius. In the Bisham-wood quarry.
 ——— *Jacobæa*. Waste places.
 ——— *aquaticus*. In wet places by the river.

Centaurea nigra and *Scabiosa*.

———— *Cyanus*. Corn-fields at the top of Cookham down &c.

Arctium Lappa and *minus*. By road-sides.

Onopordum Acanthium. At the corner of the village of Hurley, where the road to the mill turns off.

Carduus nutans. Winter hill and Cookham down, abundantly.

———— *acanthoides*, *lanceolatus* and *arvensis*. Frequent.

———— *palustris*. Frequent by the side of ditches and wet places generally.

Silybum Marianum. By the left hand side of the Little Marlow road where the lane before mentioned turns off, beyond Little Marlow; also further on, near the little village on the same road.

Lapsana communis. Common in dry situations.

Cichorium Intybus. By road-sides.

Hypochaeris radicata.

Tragopogon — ? In wet meadows.

Picris hieracioides.

Lactuca muralis. Bisham wood &c.

Barkhausia foetida. This plant, which formerly grew, though very sparingly, in Bisham wood, does not appear to grow there any longer, but it occurs in the waste ground on the north side of the Great Western railway, close to the Maidenhead station, though but sparingly. It may easily be distinguished in any state by its root, which has a powerful smell of bitter almonds.

Crepis virens. Everywhere.

Sonchus oleraceus and *arvensis*. There were two specimens of the former growing in a wet hollow at the top of Bisham wood, of an enormous size; I should think they were at least eight feet high, and were proportionally large in all their parts.

Hieracium Pilosella. On dry banks.

Jasione montana.

Campanula glomerata. Meadows by the river between the town and Bisham wood, very abundantly; also very fine in the wood to the right of the Maidenhead road, on the first ascent.

———— *Trachelium*. Woods, frequent.

———— *rotundifolia*. Dry places, frequent.

———— *patula*. At the top of a lane which turns out of the Henley road on the right, opposite Medmenham church.

Specularia hybrida. Abundantly in a corn-field through which the path passes which enters the town at the Crown inn; also sparingly on a wall at the village of Hurley.

Pyrola minor. This extremely beautiful little plant grows in all the woods round Marlow-common; I have also seen it growing in woods to the right of the Wycombe road. There can be no doubt that it grows in most of the woods in this neighbourhood, for it must undoubtedly be the same as the *Pyrola* of the Stokenchurch woods, which Sir J. E. Smith suspected might be *P. media*, and which was found, under the same name, by Mr. W. Pamplin, near Henley-on-Thames.

Monotropa Hypopitys. Bisham wood, above the quarry; also in the woods between the Oxford and Wycombe roads, but sparingly; and at Clifden.

Ligustrum vulgare. Bisham wood, &c.

Chlora perfoliata. Bisham wood, and on the bank of the road at Medmenham.

Erythræa Centaurium. In the wood overhanging the Henley road at Medmenham, and near New Lock, &c.

Gentiana Amarella. On the chalk occasionally, sometimes of great size and beauty.

Menyanthes trifoliata. By the side of a ditch in a wet meadow between New Lock and Medmenham, and also by the Strand, at Cookham, very abundantly.

Convolvulus arvensis and *sepium.*

Cynoglossum officinale. Wood of Clifden which overhangs the river.

Lycopsis arvensis. By the side of the Henley and Maidenhead road near the field-path to Hurley.

Symphytum officinale. Bank of the river, everywhere.

Echium vulgare. Near Cookham bridge, very fine, and elsewhere.

Lithospermum officinale. Abundant by the side of the Henley road at Medmenham, and in Bisham wood, sparingly.

———— *arvense.* Corn-fields, but not common.

Myosotis palustris. By the river and in wet places generally.

———— *arvensis.*

———— *versicolor.* By a pond adjoining the Oxford road.

Solanum nigrum and *Dulcamara.* Common.

Atropa Belladonna. In the woods between the Oxford and Wycombe roads, copiously; it also grows sparingly by an entrance into Bisham wood, a short distance up the ascent of the Maidenhead road.

Hyoscyamus niger. Near a pond at the back of the town, not far from the church; also by the side of a ditch in the common pasture under Cookham down; Pinkney's heath.

Verbascum Thapsus and *nigrum.* Common.

Verbascum Blattaria? One specimen at New Lock, perhaps escaped from a garden.

Orobanche major. Growing on furze upon the little common before mentioned, on the right of the Wycombe road.

———— *minor*. In the common fields opposite Bisham wood; also in a field above Cookham down, abundantly.

Digitalis purpurea. In the woods, frequent.

Antirrhinum Orontium. In the common fields opposite Bisham wood.

Linaria spuria. In cornfields on the right of the Henley road, just out of the town.

———— *repens*. This plant still grows abundantly in its old recorded habitat, namely, on the steep bank by the Henley and Maidenhead road, above Henley bridge.

———— *minor*. This species also grows there, but sparingly.

———— *vulgaris*.^a Frequent.

Scrophularia nodosa. Bisham wood &c.

———— *aquatica*. Frequent by the river and in moist places.

It is curious that in so wooded a country, and in a neighbourhood so well suited to it in every respect, so common a plant as *Melampyrum pratense* does not appear to grow.

Pedicularis palustris. Common in wet meadows; it is very fine and abundant in marshy meadows to the left of the first lane leading from the Henley road to Sir W. Clayton's.

———— *sylvatica*. Wet common by the Stokenchurch road.

Rhinanthus Crista-galli. In meadows.

Euphrasia officinalis and *Odontites*. Frequent.

Veronica scutellata. Little pond to the right of the Stokenchurch road.

———— *Anagallis* and *Beccabunga*. Ditches &c.

———— *montana*. In Bisham wood, and in most of the moist woods in the neighbourhood.

———— *officinalis*. Woods, common.

———— *Chamædrys* and *agrestis*.

Mentha sativa, (*hirsuta*, Sm.). Wet places, common.

———— *arvensis*. Common.

Lycopus europæus. Common by the banks of the river.

Salvia verbenaca. By the road-side at Medmenham, and between Medmenham and Henley, abundantly.

Origanum vulgare and *Thymus Serpyllum*. Common.

Calamintha Nepeta. This plant grows on the bank of the first lane

before mentioned, which turns off from the Little Malvern road, on the left, beyond Little Marlow ; it also grows in small quantity on the main road, immediately before the lane.

Calamintha officinalis. Far commoner than the latter species ; it grows in various places along the Little Marlow road and on the dry banks by most of the lanes thereabouts ; it also grows on the borders of Bisham wood, at the top of the hill.

———— *Acinos* and *Clinopodium*. In corn-fields and dry places, frequent.

Scutellaria galericulata. By the banks of the river.

Nepeta Cataria. In hedges, particularly on the Henley road between Medmenham and Henley.

Lamium purpureum, *album* and *Galeobdolon*.

Galeopsis Ladanum. Corn-fields.

———— *Tetrahit*. Hedge-sides &c.

Stachys Betonica. Cookham dean ; the only place where it appears to grow in the neighbourhood.

———— *sylvatica*.

———— *palustris*. By the river-side, frequent.

Verbena officinalis.

Utricularia vulgaris. Pond at the foot of Cookham down, nearest Cookham ; also in the ditch before mentioned which bounds the meadow immediately above the suspension bridge.

Hottonia palustris. In the ditches by the river above the suspension bridge, and in ditches at New Lock very abundantly.

Lysimachia vulgaris. By the river-side abundantly.

———— *Nummularia*. Banks about Little Marlow, and on the Henley road near Henley ; also in the wet meadows about Cookham.

———— *nemorum*. Bisham wood, abundantly.

Plantago Coronopus, *lanceolata*, *media*, *major*. Common.

Daphne Laureola. In the wood which overhangs the Henley road at Medmenham ; also in woods to the right of the Oxford road, but sparingly.

Euphorbia helioscopia and *Peplus*.

———— *amygdaloides*. Woods &c.

———— *exigua*. Cornfields.

Mercurialis perennis. In all the woods.

Humulus Lupulus. Hedges.

Juniperus communis. Plentiful on the part of Marlow common adjoining the Harleyford woods ; occasionally in Bisham wood.

Hydrocharis Morsus-ranæ. Frequent in ponds and ditches.

Orchis militaris. On the precipitous bank of Bisham wood, near the quarry, both below and above the path, but sparingly: it also grows very sparingly in the wood overhanging the Henley road, at Medmenham.

—— *maculata*. Frequent.

—— *pyramidalis*. Woods between the Oxford and Henley roads; by the Henley and Maidenhead road, &c.

—— *conopsea*. Woods between the Oxford and Henley roads; also in the wood at Medmenham mentioned above.

Habenaria bifolia. Bisham wood, especially the continuation of it on the right of the Maidenhead road.

Ophrys apifera. On the turf slope of the woods between the Oxford and Henley roads, on the right side of the valley.

—— *muscifera*. In almost all the woods more or less.

Listera ovata. Bisham wood.

Neottia Nidus-avis. Very abundant in Bisham wood, on both sides of the Maidenhead road, &c.

Epipactis latifolia. Bisham wood, especially the continuation of it on the right of the Maidenhead road. There is an *Epipactis* growing in the Stokenchurch woods, which is, in its young state, quite purple in both leaves and stem: it must, I suppose, be *E. purpurata*. I have seen it also in Bisham wood, but have not had an opportunity of seeing it in flower.

Cephalanthera grandiflora. In Bisham wood, abundantly; and in the woods round Sir W. Clayton's house.

Iris Pseud-acorus. Wet places near the river.

—— *fætidissima*. Wood at Medmenham before mentioned; New Lock, abundantly; woods between the Oxford and Wycombe roads, abundantly.

Ruscus aculeatus. Clifden.

Juncus effusus and *conglomeratus*.

—— *acutiflorus*. Pond in the common fields opposite Bisham wood.

—— *supinus*, (*uliginosus*, Sm.) Cookham dean.

Luzula Forsteri, *pilosa* and *campestris*. Bisham wood and wet woods generally.

—— *congesta*. At the top of Bisham wood.

Alisma Plantago.

Sagittaria sagittifolia. Ditch above the suspension bridge, &c.

Butomus umbellatus. In one of the ponds at the foot of Cookham down.

- Typha latifolia*. In the same pond.
- Sparganium ramosum* and *simplex*. In the same pond.
- Potamogeton natans*. Ditches and ponds.
- *crispus*. In a pond by the side of the Wycombe road, about three miles from Marlow.
- Eleocharis palustris*. Wet meadow under Bisham wood.
- Scirpus lacustris*. Thames, frequent.
- Carex vulpina*. By the side of the river and ditches, common.
- *muricata*. Bank of the Henley road, near the first ascent, and in lanes on that side of the town; Bisham wood, &c.
- *remota*. Bisham wood and by the side of ditches &c.
- *ovalis*. By the side of ponds on Cookham dean, &c.
- *sylvatica*. Bisham wood, &c.
- *Pseudo-cyperus*. Abundantly in a ditch at the foot of Cookham down, by the nearest pond.
- *glauca*, (*recurva*, *Huds.*). In all the woods.
- *hirta*. By the bank of the river near Sir G. Nugent's.
- *vesicaria*. By a pond in a field immediately below Bisham wood, about half way between the river and the Maidenhead road.
- *paludosa* and *riparia*. Banks of the river, &c.
- Phalaris arundinacea*. By the river side &c., frequent.
- Alopecurus pratensis*, *geniculatus* and *agrestis*.
- Milium effusum*. Woods, common.
- Agrostis vulgaris* and *alba*. By the side of cornfields &c., abundantly. I suppose both these species grow there, but should be very glad to know of any decided character by which to distinguish the two species.
- Phragmites communis*. In wet places by the river.
- Aira cæspitosa*. Wet meadows &c., common.
- Trisetum flavescens*. Common.
- Avena fatua*. In a field to the right of the Wycombe road, at the first descent; in the common fields opposite Bisham wood, &c.
- *pubescens*. Winter hill; on the chalk, common.
- Arrhenatherum avenaceum*. Hedges everywhere.
- Holcus lanatus*. Roadsides &c.
- *mollis*. On the little common between the Oxford road and King's farm.
- Triodia decumbens*. Woods to the right of the Henley road, a little way out of the town.
- Kæleria cristata*. In the little wood on the right of the Maidenhead road at its first ascent, but sparingly.

Poa pratensis, *trivialis* and *nemoralis*. The latter in woods.

Glyceria aquatica. Abundantly in wet places by the lane which runs parallel with the river, above the suspension bridge, and in the river, frequently.

——— *fluitans*. Ponds and ditches.

Sclerochloa rigida. On walls and dry banks.

Briza media. Common.

Cynosurus cristatus. Ditto.

Dactylis glomerata. Ditto.

Festuca bromoides (Myurus). On a wall behind the town near the church.

——— *ovina*. In dry places.

——— *gigantea*. Bisham wood, and in shady places elsewhere.

——— *elatior*. In the lane before mentioned, running parallel with the river above the suspension bridge, and in wet pastures.

Bromus erectus. Bisham wood, to the left of the path leading to Winter hill, and on the chalk, frequently.

——— *asper*. Bisham wood, and in woods generally.

——— *sterilis*. By road-sides &c.

Serrafalcus racemosus. Growing abundantly in the meadows immediately under Bisham wood, by the side of the river.

Brachypodium sylvaticum. Woods, abundantly.

Triticum caninum. In Bisham wood, on the right, after crossing the little foot-bridge; and on dry banks about Clifden, &c.

——— *repens*. Hedges &c.

Lolium perenne.

——— *multiflorum*. I found this plant growing in a field on the left side of the Maidenhead road, about a mile from the town of Maidenhead; it grew in patches about twice as tall as the *L. perenne* which surrounded it. The number of florets is variable, but in some plants they are as many as sixteen or seventeen, and the awn is usually rather longer than the glumes.

Hordeum sylvaticum. Abundantly in Bisham wood, and in most of the woods, more or less.

——— *pratense*. Meadows, frequent.

——— *murinum*. Roadsides &c.

G. G. MILL.

Kensington, January, 1844.

ART. CCXX.—*Varieties.*

483. *Note on the Primula elatior.* I am glad to find that the *Primula elatior* has, this season, claimed the attention of some of our eminent English botanists, and that the result of their examination quite coincides with the opinion I have formed respecting this plant. It grows very abundantly in many of the woods in this neighbourhood, while *P. vulgaris* is rather uncommon, and is never met with, so far as my observation has extended, in the same woods as *P. elatior*; in a few places *P. veris* and *vulgaris* are found intermixed, and among them is occasionally scattered a plant which I take to be a hybrid between them, partaking of the characters of each, but it is quite different from the real *P. elatior*, both in the colour and form of the flower, in the calyx, &c.; but in these situations there are only a few scattered among the two parent stocks, while in those places where *P. elatior* grows, neither *P. vulgaris* nor *P. veris* is met with, which, were the former only a hybrid between them, must be considered a very remarkable and inexplicable circumstance. I have had a plant of it in my garden for several years, where it retains in all respects its specific characters.—*G. S. Gibson: Saffron Walden, May 5, 1844.*

484. *Proposal as to the Nomenclature of the Bardfield Oxlip.* Botanists appear more and more to incline to the opinion that Mr. Doubleday's Bardfield oxlip is distinct as a species; and I believe they generally coincide also in the opinion that it is not the plant termed *elatior* by Linneus and the majority of subsequent authors: it may further be stated as the opinion of competent judges, that Mr. Doubleday's plant is the *Primula elatior* of Jacquin. Sir William Hooker, in the recently published edition of his 'British Flora,' gives *Primula elatior* of Jacquin as synonymous with *Primula veris* β . *elatior* of Linneus, without any allusion to the Bardfield plant, and Mr. Babington gives the Bardfield plant as a distinct species, without any allusion to the Linnean plant. We are thus compelled, in order to avoid confusion, to speak of Mr. Doubleday's discovery as *the Bardfield oxlip*, or *Jacquin's elatior*, or to devise some other unscientific term in order to make ourselves understood. This does not seem in accordance with the usage of science. It is quite evident that the name of *elatior* is preserved out of respect to Linneus, but it is a tribute of respect we have no right to pay. Were Linneus himself living, would he not unite with us in opinion as to the non-identity of the two *elatiors*? Would he not say, "I object, gentlemen, to your

giving one of my names to a species with which I was unacquainted ; I still believe *my* elatior to be nothing more than a hybrid, or a casual variety, *yours* is a distinct species, and must not be confounded with *mine*." I suggest therefore that it should bear the name of Jacquin, if that author was the first to point out its distinctness as a species, and that it should henceforth be called *Primula Jacquinii*. — *Edward Newman ; Peckham, May, 1844.*

485. *Note on Lunularia vulgaris fruiting under glass.* About this time last year I received from J. Ralfs, of Penzance, some living specimens of *Lunularia vulgaris*, with young female receptacles covered by the indusium, being informed by him that they never attain to greater perfection in that neighbourhood. I placed them in a box under glass, with other *Hepaticæ*, and in two or three months had the pleasure of seeing the peduncle gradually rise, and the fruit fully matured, with its cruciform tubulose processes. As the circumstance of *Lunularia* fruiting under glass is mentioned in 'Flora Hibernica,' I thought it might be interesting to some of the readers of 'The Phytologist.'—*Isaac Brown ; Hitchin, 15th 5th Mo. 1844.*

486. *New locality for Barkhausia setosa.* On carefully examining some plants which I gathered last summer in a clover-field, on a chalk soil, near Hitchin, I find that they perfectly agree with the description of *Barkhausia setosa* in Koch's Synopsis, and have no doubt that they were introduced with the clover-seed. This makes the third station, if I mistake not, for this plant. — *Wm. Dawson ; Hitchin, May 15, 1844.*

487. *Note on Agaricus macrorrhizus.* Since I sent you the list of Agarics found in the neighbourhood of Hitchin (Phytol. 968), Mr. I. Brown met with a fine crop of *Agaricus macrorrhizus*, growing plentifully in a cucumber-bed, some having a pileus an inch and a half broad, and a root five or six inches long. *Agaricus domesticus* was also found growing on damp wood in a wash-house.—*Id.*

488. *List of Mosses found near Penzance.* A list of *Algæ*, many of them peculiar to this district, from the pen of Mr. Ralfs (Phytol. 193), and one of the *Hepaticæ* of Penzance by Mr. Curnow (*Id.* 609) having already appeared in the pages of 'The Phytologist,' I venture to add also a list of the mosses of the neighbourhood, presuming it will not be altogether devoid of interest, as it contains several rather rare species. Although many additions have been made during the last winter, and the list at present is by no means a short one, still I believe that much remains to be done in investigating the mosses of this western limit of England, the greater portion of the north, and some

portion of the southern coast, still remaining unexplored; a line of country, which, especially where some rivulet dashes down the cliffs, must be peculiarly adapted to the growth of many cryptogamic plants. It may be as well to observe that all the species mentioned here grow within four miles of Penzance, except those which are stated to occur only at Hayle, St. Ives, the North Coast, or the Land's End, which would be about eight miles distant.

Phascum subulatum.

———— *axillare*. Field near Newlyn,
Mr. Curnow. The preceding winter we were unable to find this moss.

———— *cuspidatum*. Banks, not very common.

———— *rectum*. Banks, most plentiful between Penzance and Hayle.

Sphagnum obtusifolium and *acutifolium*.

———— *cuspidatum*, B. Moor near Madron.

Gymnostomum viridissimum. Trunks of trees; fruit not uncommon in this neighbourhood.

———— *truncatulum*.

———— *crinita*, (Pottia crin. Wils. MS.) On the ground over a cave between Mousehole and Lamorna.

———— *conicum*. Banks, chiefly between Penzance and Hayle.

* ——— *ericetorum*, var. (Physcomitrium ericetorum, Br. & Schimp., Gymnostomum fasciculare, Hook. & Tayl.) Coast between Mousehole and the Land's End, rather plentiful in wet places.

* ——— *fasciculare*. (Phys. fasciculare, Br. & Sch.) Frequent in meadows, both in wet and dry situations.

———— *pyriforme*. Common.

———— *microstomum*. St. Michael's Mount, a single tuft gathered.

Anictangium ciliatum. Rocks and stones.

Schistostega pennata. Moist recesses of banks in many places, fruit rare in this district.

Diphyscium foliosum. Banks near Choôn. Road-side above Trenguanton carn, Mr. Curnow.

Weissia affinis. Cliff between Mousehole and Lamorna, along with Pottia crinita.

———— *cirrata*. Sparingly on a stone in Trevalyer bottom,† Mr. Ralfs.

———— *curvirostra*. Bank near Hayle causeway, Mr. Ralfs.

———— *controversa*.

———— *verticillata*, B. Wet rocks on the coast near St. Ives.

Grimmia maritima. Common on rocks above high-water mark.

———— *pulvinata*. Stones near Bologgas by no means abundant.

Didymodon purpureus.

———— *trifarius*. Coast near Newlyn; plentiful around Hayle.

———— *flexicaulis*, B. Sennen green near the Land's End, Mr. Ralfs.

Trichostomum funale. Tol Carn, Newlyn, sparingly in fruit.

———— *heterostichum*. Common on rocks and stones.

———— *aciculare*. Plentiful in the rocky streams: it also occurs in dry situations.

———— *fasciculare*. Not nearly so abundant as the last; fr. rather scar.

* I am indebted for my information respecting these two mosses to Mr. Wilson, who also kindly named several of the other species which were sent to him by Mr. Ralfs.

† A *bottom* is a provincial term here for a narrow valley, mostly where some rivulet runs down towards the sea.

- Trichostomum polyphyllum*. Very com.
- Dicranum bryoides*.
 ——— *β. osmundioides*. In caves of the southern coast.
 ——— *adiantoides*. Fruit scarce.
 ——— *taxifolium*. Fruits near Newlyn
 ——— *glaucum*, B.
 ——— *flexuosum*. Heathy moor, rather common.
 ——— *squarrosum*, B. North coast, near Morvah.
 ——— *scoparium*. Bologas.
 ——— *Dillenii*. Abundant on the moors.
 ——— *varium*. Bank near Penzance; plentiful in an old clay-pit near Copperhouse.
 ——— *heteromallum*.
- Tortula rigida*. Wall-tops &c. very com.
 ——— *muralis*.
 ——— *ruralis*. Barren upon Marazion green and the sand-banks at Hayle.
 ——— *β. lævipila*. In fruit on trees and stones, but not very common.
 ——— *unguiculata*.
 ——— *fallax*. Foliage in many places; fruit on a wall near Bologas.
- Polytrichum undulatum* and *proliferum*.
 ——— *juniperinum*. I have met with several specimens of this moss with two distinct setæ arising from the apex of the stem, but having the calyptræ closely united "by their hairy covers, thus forming, as it were, a two-celled calyptra," precisely as mentioned by Mr. T. Sansom of P. commune (Phytol. 93), who gives a detailed account of this monstrous variety.
 ——— *urnigerum*, B. Chy-an-hâll moor.
 ——— *commune, aloides, nanum*.
- Entosthodon Templetonii*. Pathway along the cliffs between Hayle & St. Ives.
- Funaria hygrometrica*.
- Zygodon conoideus*. Sparingly on a single tree in Trevayler bottom, *M. Ralfs*.
- Orthotrichum affine* and *β. pumilum*.
 ——— *diaphanum*. On trees, common, sometimes upon stones.
 ——— *crispum*. Rare in fruit: also found on stones by the coast.
 ——— *pulchellum*. On elder trees in Keneggie-bottom, near Badger's cross, *Mr. Ralfs*.
- Bryum palustre*. In fruit on Tremethick moor.
 ——— *carneum*. Old clay-pit near Copperhouse, *Mr. Curnow*.
 ——— *argenteum, capillare, cæspitium*.
 ——— *nutans*. Cliff near Newlyn.
 ——— *alpinum*, B. Rather frequent in wet places upon the cliffs beyond Mousehole.
 ——— *ventricosum*, B.
 ——— *ligulatum*. In fruit at Trevayler-bottom.
 ——— *punctatum*. Sides of streams, co.
 ——— *hornum*. Abundant.
 ——— *Tozeri*. Barren in several places; in fruit in a hole of the cliff near Newlyn, *Mr. Curnow*.
- Bartramia pomiformis*. Banks, common.
 ——— *fontana*. Common. A small variety in fruit on the coast near Mousehole, and on the north coast.
- Pterogonium gracile*, B. Tol Carn, Newlyn.
- Leucodon sciuroides*, B. Tree in Lovelane, Penzance.
- Neckera crispa*, B. Path along the cliff between St. Ives and Hayle; also on the north coast.
- Daltonia heteromalla*.
- Fontinalis antipyretica*, B.
 ——— *squamosa*. Abundant in all the rapid streams.
- Hookeria lucens*. Sides of streams, &c., common.
 ——— *late-virens*. Mousehole-cave, very sparingly in fruit, *Mr. Ralfs*.—This rare moss was also discovered by Mr. Borrer, in another cave between Mousehole-cave and Lamorna but I fear it is now extinct there, as

Mr. Ralfs and myself searched the spot diligently this winter, but were unable to find a vestige of it.

Hypnum complanatum. Fruit not comn.

—— *undulatum*, B. Rather frequent.

—— *denticulatum*. Common.

—— *serpens*.

—— *populeum*. Stone hedges &c. in many places.

—— *purum*. Fruit scarce.

—— *Schreberi*. Common.

—— *catenulatum*, B. In several places; abundant in some of the caves of the coast.

—— *plumosum*. By Trengwainton-pond.

—— *sericeum*. Fruit not common.

—— *lutescens*, B. On the ground occasionally; very abundant upon the sand-banks at Hayle.

—— *alopecurum*.

—— *curvatum*. Not very common.

—— *myosuroides*.

—— *splendens*. Moist banks &c. frequent; fruit occasionally met with.

—— *proliferum*. In fruit in many places.

—— *prælongum*.

—— *blandum*, B. Stone wall near Gulval, also at St. Michael's mount.

Hypnum rutabulum, ruscifolium.

—— *striatum*. In fruit in Trevalyer-bottom, and near Hayle.

—— *confertum*.

—— *cuspidatum*. In fruit at Tremethick moor and Marazion marsh, and also near Copperhouse.

—— *polymorphum*, B. Between St. Ives and Hayle

—— *stellatum*, B. North coast near Morvah.

—— *loreum*, B. Banks &c.

—— *triquetrum*. In fruit near Bologas and at Trevalyer-bottom.

—— *brevirostre*, B., *squarrosum*, B.

—— *filicinum*, B. A large var. upon rocks by the sea, where water runs down, near Mousehole, and at Hayle.

—— *palustre*, B. Tringwainton pond.

—— *fluitans*. In fruit at Chy-an-hâl moor.

—— *scorpioides*, B. Tremethick moor

—— *cupressiforme*. Extremely common. A small variety with an erect cylindrical capsule and rostrate lid, is very abundant upon apple-trees.

—— *molluscum*, B. Plentiful by the side of a path along the cliffs between Hayle and St. Ives. Also at Newlyn, very sparingly.

I cannot do less than acknowledge that I am indebted to Mr. Ralfs and Mr. Curnow, for their kind assistance in my investigations, and for having directed me to the stations of many of the species.—*Alfred Greenwood: Penzance, May 11, 1844.*

489. *Note on Anthyllis vulneraria*. Upon examining various specimens of this plant, gathered near Mousehole, I was surprised to find that the stamens were not monadelphous, as stated in all the Floras to which I have access, but truly diadelphous, or nine united and one free. May I enquire, through the medium of 'The Phytologist,' whether this variety be of frequent occurrence; for a variety I suppose it must be, as, had it been the usual state of the plant, botanists would surely never have placed it in the monadelphous group. — *Id.*

490. *List of Agarics found near Bromley, Kent*. In compliance with Mr. Dawson's request (Phytol. 968), I subjoin a list of Agarics

found during the last three years in the neighbourhood of this place ; all, except *A. violaceus*, within a radius of three miles.

<i>Agaricus phalloides</i>	<i>Agaricus coccineus</i>	<i>Agaricus caperatus</i> , β .
vaginatus	laceatus	squarrosus
muscarius	β . amethystinus	collinitus
asper	sulphureus	fastibilis
procerus	radicatus	flocculosus
cristatus	velutipes	rimosus
granulosus	fusipes	geophyllus
ditto, white variety	butyraceus	furfuraceus
melleus	dryophyllus	tener
eburneus	peronatus	hypnorum
Cossus	oreades	involutus
hypothejus	esculentus	variabilis
fulvus	ramealis	bombycinus
rutilans	Rotula	volvaceus
imbricatus	androsaceus	Georgii
multiformis	caulicinalis	campestris
argyraceus	epiphyllus	semiglobatus
Columbetta	filopes	vervacti
personatus	alcalinus	æruginosus
nudus	galericulatus	lachrymabundus
alutaceus	elegans	lateritius
emeticus	purus	fascicularis
adustus	lacteus	callosus
torminosus	Fibula	areolatus
deliciosus	pyxidatus	stipatus
Volemum	fragrans	atomatus
quietus	cyathiformis	gracilis
fuliginosus	ostreatus	semiovatus
piperatus	palmaris	fimiputris
vellereus	stypticus	vitellinus
exsuccus	prunulus	titubans
infundibuliformis	pluteus	disseminatus
β . major	pascuus	comatus
nebularis	Sowerbei	atramentarius
odorus	gentilis	micaceus
dealbatus	violaceus	cinereus
grammopodius	glaucopus	niveus
pratensis	sanguineus	plicatilis
virgineus	iliopodius	glutinosus
psittacinus	aimatochelis	rutilus
conicus	aureus	

George Sparkes ; Bromley, Kent, May 14, 1844.

491. *Note on the Bardfield and Claygate Oxlips.* The correspondents of 'The Phytologist' appear to be still feeling an interest in the subject of the oxlips. I am induced therefore to point out a charac-

ter of the Bardfield plant (*Primula elatior*, *Jacq.*) which will probably afford a certain distinction between the latter and the spurious oxlips. In the cowslip and primrose, and all their varieties, a circle of scale-like glands surrounds the orifice of the tube of the corolla. These glands are absent from the *Primula elatior*. It is difficult to specify any other sufficient character, as I have seen exceptional instances to all the characters (taken singly) by which this plant is distinguished from the other two species in Mr. Babington's Manual; the specific character drawn out by that author being quite accurate, but not invariably applicable. While alluding to the oxlips, I take advantage of the opportunity of also again mentioning a peculiar variety of the primrose, spoken of in the first No. (Phytol. 9), although at the time I was not aware that I was writing a letter to be printed verbatim. The plant has remained in my garden since the spring of 1841, flowering freely, but without a single young plant appearing about it: this apparently countenanced the idea of its hybrid origin. To obtain better proof, I collected the seeds last year, and sowed them this spring in a flower-pot, kept well watered: the result is now seen in dozens of young plants, which so far tends to negative the supposition of hybridity. These young plants will not flower before next year. — *Hewett C. Watson; Thames Ditton, May 25, 1844.*

492. *Note on Cystopteris alpina and regia.* The long-mooted question respecting the distinction between *Cystopteris alpina* and *regia* appears to be in almost as unsatisfactory a state as it ever was. Francis treats it in a very summary manner (see his note, foot of p. 24). His conclusion, that we "are bound to conclude that when the plant was vigorous, it took one character, and now that it is but struggling for existence, it assumes the other," seems extremely unsatisfactory. Last winter, some specimens came into my hands from Mr. Shepherd, of the Liverpool Botanic Garden, a gentleman whose long celebrity in the cultivation of ferns, renders his opinion of some weight. One was marked "*Cystea alpina*, Hook. Br. Fl. Switzerland;" the other, "*Cystea regia*, Bernh. Settle, Yorkshire. 1816." The extreme dissimilarity between the specimens striking me at first sight; and on further examining them with a glass, it being still more apparent, I was induced to enquire further of that gentleman respecting them. He said that he had gathered *C. regia* himself at Settle, twenty-eight years ago; he had brought live specimens with him from Settle, which plants he had cultivated ever since that time, but they remained in every way (through so long a period of cultivation) the same as those he had gathered in a wild state. The specimen he

sent me was a wild one, and agreed in every way with Sir J. E. Smith's description in 'English Flora.' Its larger, stouter, and every way fuller habit, being apparent at the first glance. *C. alpina*, Mr. Shepherd said was a Swiss specimen: it had been cultivated for some years by him from plants sent him by Mr. Otto. Now though *alpina* was a cultivated specimen, and had had full chance of becoming "vigorous" in the gardens, and although *regia* was wild—"struggling," "we are bound to suppose," for existence—in a place where it is most probable it is now extinct; yet the latter is by a very great deal the stouter of the two. Being but a novice in botanical research, and incapable of forming an opinion on so difficult a matter, I have been induced to refer the matter to you, hoping that after you have examined the enclosed specimens, you will let me know the result in 'The Phytologist.'—*James Lowe; Twycross, April, 27, 1844.*

ART. CCXXI.—*Proceedings of Societies.*

LINNEAN SOCIETY OF LONDON.

February 20, 1844. — The Lord Bishop of Norwich, President, in the chair. Read, a further portion of Mr. Griffith's memoir on Root-parasites and their allies.

March 5.—E. Forster, Esq., V.P., in the chair.

Wm. Hopkins Milne, Esq., was elected a Fellow.

Read, a paper "On *Spiranthes gemmipara*." By C. C. Babington, Esq., M.A., F.L.S., G.S., &c. Two specimens of this very rare plant were first found by Mr. James Drummond, in or about the year 1810, near Castletown, Bearhaven, in the county of Cork, "opposite the western redoubt, growing in a salt-marsh near the shore." One of these was communicated to Sir J. E. Smith, who published it in his 'English Flora' under the name of *Neottia gemmipara*, with a description furnished by Mr. Drummond. Within these few years the plant has been again discovered near to, but probably not in exactly the original spot, by Dr. P. A. Armstrong, who, on the 30th of September, 1843, conducted Mr. Babington and Mr. E. Winterbottom to the station, where they saw about twelve specimens, several of which had been destroyed by cattle, and all were in a rather advanced state of flowering. Mr. Babington has given a detailed description of the plant from the specimens then collected, and has subsequently identified it with specimens of Reichenbach's *Spiranthes cernua*, from N. America, in Sir W. J. Hooker's herbarium. It differs in some particulars from the other European species; the most remarkable discre-

pancy consisting in the connexion of all the sepals with the two lateral petals. The difference in habit is considerable from the great density of the spike, and the arrangement of the flowers in three spiral lines.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, April 11, 1844. — Professor Graham, President, in the chair. Donations to the library and herbarium were announced from Dr. Gottsche, Altona, Mr. W. C. Trevelyan, Mr. C. C. Babington, Mr. Parker, Mr. Ogilvie, Mr. Jackson and Mr. Evans.

The following papers were read: —

1. On four genera of Desmidiæ, by Mr. Ralfs, Penzance. In these papers, which were illustrated by beautifully executed sketches, fourteen species of this group are described, nine of which belong to *Euastrum*, two each to *Tetmemorus* and *Micrasterias*, and one to *Berkeleya*. Regarding the former of these, Mr. Ralfs makes the following remarks, which are worthy of attention from such botanists as may wish to study this minute though interesting family: — “The species of *Euastrum* are not well defined; plants of this genus vary greatly in form, and it is not unlikely that young fronds have been described as distinct. Whenever it is practicable, the frond should be examined in *four* different directions, namely, in the *front* or usual position, at the *side*, at the *end*, and by a *transverse* or *junction view*, after the segments have been separated.” And again, in describing *E. gemmatum*, he says,—“Whilst engaged in examining this species I was first struck with the advantage to be derived from the figure of the *transverse view* in the discrimination of nearly allied species. I have since obtained Meneghini’s Synopsis of this family, and find that he has extensively availed himself of it in forming his specific characters of this genus.”

2. Note on a Monstrosity of the Pistil of *Primula vulgaris*. By Mr. C. C. Babington, M.A., &c., Cambridge. The curious monstrosity described in this paper was sent to the author by Mr. J. H. Walton, of St. Bees College, in Cumberland. Flowers of the usual form and structure were found on the same root, with two flowers possessing the anomalous organ, which Mr. Babington describes as follows: — “Within the base of the corolla is situated a small fleshy cup, from the centre of which springs a cylindrical stem, capped with another shallow fleshy cup, having a wavy margin. An exposed conical placenta, covered with peltate ovules, is seated in the centre of the latter cup. Thus the true ovary is converted into a cup-shaped body, and the capitate stigma has become an open fleshy ovary.” The

description of this curious structure gave rise to some discussion, in which the President and Dr. Greville took a part.

3. On the Fructification of *Cutleria*, and continuation of the Marine Algæ of the vicinity of Aberdeen. By Dr. Dickie, lecturer on Botany in King's College. In this communication (in which the remainder of the olive-coloured Algæ, hitherto observed on the Aberdeenshire coast, are enumerated), the author discusses at considerable length the characters which have been assigned to various species by different writers on Algæ, and states his own views respecting them. He also notices the comparative paucity of the marine Flora of Aberdeenshire, ascribing the absence of the more delicate species, partly to the unsheltered nature of the coast, and partly to the influence of temperature; and says,—"Scarcely one half of the Melanospermous Algæ, enumerated in Harvey's Manual as occurring in Britain, are found here—the proportions being as 34 to 80."

4. On some British species of the genus *Œnanthe*. By John Ball, B.A., &c., Dublin. In this paper three species of *Œnanthe* are described as natives of Britain; viz., *Œ. pimpinelloides*, *Linn.*, *Œ. silaifolia*, *Bieb.* (*peucedanifolia*, *Sm.*), and *Œ. Lachenalii*, *Gmel.* The first is stated to be very rare, the author having only seen one specimen wanting fruit, which was gathered near Forthampton, in Gloucestershire, by Mr. E. Lees. He is, however, fully of opinion, that it is the true *pimpinelloides* of Linnæus and the continental botanists, and proposes that the plant should resume its place as a species in the English Flora; the last is stated to be the commonest of the group—he having received it from several parts of England, from the coast of Galloway, and from near Dunbar in Scotland. The paper concludes with the following remarks on the value of the characters of these species:—"The position and size of the tubers of the root are, I suspect, of doubtful constancy. Observation must determine its importance. The general disposition and proportions of the leaves are probably much to be depended on here, and throughout the whole order. The hollowness or solidity of the stem depends, I believe, almost wholly on the place of growth, and is of no moment. The petals vary somewhat in size, but scarcely in form, those of the outer sterile florets being always compared with each other. The form of the fruit seems not so constant as might be expected. The presence or absence of the incrassated summit of the pedicel I never have seen to vary."

Thursday, May 9, 1844.—Professor Graham, President, in the chair. The following papers were read:—

1. On the Difference between the Robertsonian Saxifrages of Ireland, and those of the Pyrenees. By Mr. C. C. Babington, M.A., F.L.S., &c. In this paper the author pointed out the differences which he had observed between the Irish species of *Saxifraga* referrible to Haworth's genus *Robertsonia*, and the corresponding plants of the Pyrenees. In a paper contained in the 'Annals of Natural History,' he had already shown that the Pyrenean *S. umbrosa*, the typical plant of the group, differs from the Irish form; but was not then aware that precisely the same differences existed between the *S. Geum* and *S. hirsuta* of these two countries. "The differences referred to," observes Mr. Babington, "are found in the form of the margin of the leaves, which may be correctly denominated '*crenate*' in the Pyrenean plants, but to which the terms '*acutely crenate*,' '*serrate*,' or '*dentate*,' must be applied when the Irish specimens are described." The paper was accompanied by drawings of the leaves of the species under consideration.

2. Contributions to British *Jungermannia*. By Dr. Taylor, Dunkerron. Communicated by Mr. W. Gourlie, jun. Glasgow. In this paper six species of *Jungermannia*, new to the British Flora, are described, viz., *J. nimbosa*, *Taylor*, MS., *J. curta*, *Martius*, *J. Thuja*, *Dicks.*, *J. rivularis*, *Nees*, *J. Dillenii* and *J. Aquilegia*, *Taylor*, MSS., with a minute diagnosis of each species.

3. On the genus *Staurostrum*, (Desmidiæ). By Mr. John Ralfs, Penzance. In this paper, which is a continuation of a series on the Desmidiæ, fourteen species are described, with an analysis of the genus, and drawings exhibiting the appearance of the frond in each species described, both in a front and end view.

4. A second paper by Mr. Babington was read—"On some British species of the genus *Ænanthe*." This communication was drawn up after the perusal of Mr. Ball's paper on the same subject, read before the Society at last meeting. The author agrees with that gentleman in believing that the true *Æ. pimpinelloides* of Linnæus is indigenous to England, he having received specimens of a plant nearly agreeing with Mr. Ball's description, from the Rev. W. L. P. Garnons, which were gathered in a "marsh between Weymouth and Portland Island." In reference to the other species, viz., *Æ. peucedanifolia*, *Smith*, and *Æ. silaifolia*, *Bieb.*, there seems still to exist considerable difficulty, which the author has not yet been able satisfactorily to explain, from the want of authentic specimens of Bieberstein's plant.

5. An additional note on the monstrosity of the Pistil in *Primula vulgaris*. By Mr. C. C. Babington. In the account given of this

curious monstrosity at the last meeting of the Society, no mention was made of the state of the male organs or the floral envelopes. Mr. Babington has supplied this desideratum in the present notice. The stamens were of the usual form, and in the usual position; and he now supposes that the two cups alluded to in the former notice, as occupying the place of the capsule, are formed by two whorls of carpellary leaves, and that the development of two in place of one, has deprived each of the power of becoming a perfect capsule, or of producing a style in the usual manner.

A donation to the library was presented from F. S. Cordier, M.D., Paris, being his 'Histoire et Description des Champignons.' David Walker, Esq., M.A., North Hill, Colchester, was elected a non-resident Fellow of the Society.—*Edinburgh Evening Post and Scottish Standard*.

BOTANICAL SOCIETY OF LONDON.

May 3, 1844.—J. E. Gray, Esq., F.R.S., &c., President, in the chair. Various donations to the library and herbarium were announced.

A specimen of *Barkhausia setosa* was presented by G. S. Gibson, Esq., which was stated to have been found by Dr. J. B. Wood, in corn-fields, at Withington, near Manchester.

A specimen of *Primula vulgaris*, bearing three flowers upon a long, slender scape, was exhibited from Mr. D. Stock, of Bungay, as an example of the plant usually (though incorrectly) called *Primula elatior* by the botanists of that part of England. Having been enclosed in a post letter before drying, it was too much shrivelled to admit of its being assigned quite certainly to the variety *caulescens* of the London Catalogue. The variety *intermedia* of the same Catalogue usually bears ten or twenty flowers on a scape, and approximates to the cowslip in its deep colour and short pubescence.

A monstrosity of *Primula vulgaris* was also presented by Mr. D. Stock. In this specimen, a short peduncle terminated in a funnel-shaped calyx, formed by the adhesion of fifteen sepals, and enclosing two distinct corollas; the limb of one corolla being divided into eight lobes, that of the other into seven.

Read, "A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks, (Part 2)," by Edwin Lees, Esq., F.L.S.—*G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

May 15, 1844.—Thos. Bell, Esq., F.R.S., &c. President, in the chair.

Mr. Bowerbank called the attention of the Society to a minute species of *Conferva* growing between the lenses of an achromatic object-

glass, which he described as being chiefly composed of branching elongated tubes, containing molecular spherules at irregular distances, and accompanied with the appearance of moisture adhering to the tubes. Another form was that of a series of molecular spherules touching each other, and presenting a moniliform appearance, this he attributed to the escape of those bodies from the tubes, and suggested the probability that this mode of arrangement might be due to an extension of the principle of polarization. He also produced some objects mounted on glass, under talc, in which the paper covering them had been *pasted* down, and in which a *Conferva* of an exactly similar appearance was seen branching over the objects, and greatly obscuring them. Mr. Bowerbank also exhibited an aquatic larva, very commonly found in the water with which London is supplied, in which the circulation is seen in a very beautiful manner, as well as a peculiar contraction of the muscles of the limbs, which, in some instances, appear to be composed of a single fasciculus, and in contracting are simply bent at intervals, without exhibiting an appreciable swelling of the fasciculus of ultimate fibres.

Mr. J. Quekett made some observations on the cause of the iridescent surface of glass which has been for some years either exposed to the atmosphere or buried in the earth. This was clearly shown to be the result of a decomposition of the surface of the glass, which is thus split up into a vast number of exceedingly fine and close lines, intersecting each other in every direction, and thus producing the effect described.

Some observations were made by Mr. E. Quekett, on the crystals contained in the cells of plants. He stated that in most cases the position of these bodies is accidental or uncertain, but in some instances, as in the cells of the covering of the seed of the elm, the crystals are regularly disposed in all specimens, and appear to be adherent only to the walls of the cells that touch each other in the horizontal plane. Mr. Q. made further observations on the supposed use of these bodies in the vegetable kingdom, and was of opinion, as Professor Bailey of West Point, New York, had stated, that these bodies contributed by the decay of the plant, as well as the vegetable matter, to furnish materials for the support of future plants. The enormous quantity (sometimes 80 per cent. in the dried plant), and their composition, which is oxalate of lime in most cases, seemed adapted, by the decomposition of the oxalate into carbon and oxygen, to furnish two important elements of vegetable structure. — *J. W.*

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ART. CCXXIII.—*Further Remarks on Botanical Classification.*

By PHILIP B. AYRES, Esq., M.D.

Thame, June 19, 1844.

SIR,

I am fearful that both your readers and yourself will desire that our discussion on botanical classification, and the relative merits of the systems now in use, should come to an early termination; and in this desire I, for one, heartily concur: not, however, that I am afraid of my opponents, or ashamed of the line of argument I have employed; but that I think the pages of your journal might perhaps be more profitably filled. Nevertheless, should Mr. Edmonston or Mr. Forster prolong the controversy, I may promise them to be found at my post.

The last letter from Mr. Edmonston (Phytol. 977) was unfortunately written before he had seen my communication in reply to Mr. Forster (Id. 960); and having been so, the main argument of my last letter on the nature of species was left untouched, or at the most but slightly glanced at as a transcendental or ultra-metaphysical notion or set of notions. But whether it be transcendental and ultra-metaphysical or not, is a matter of little importance, since to answer the purpose of Mr. Edmonston, it must be *disproved*. Much therefore of Mr. Edmonston's renewed disquisition on the nature of species, must fall to the ground, since he has taken no notice of the *species* of minerals, to which the term is fully as applicable as to plants and animals. Even Linnæus himself applied the term to minerals in his 'Systema Naturæ,' and I suppose Mr. Edmonston will not call his authority in question!

Now if *species* be applicable to minerals, the power of generating their like is, as I have before shown, merely one of the characters on which the induction is founded; and the attempt to reduce my argument to absurdity, by bringing forward hybrids between genera, orders and classes, becomes completely nugatory, for the absurdity of supposing hybrids between *species* of minerals, is most palpable!!!

But further, if Mr. Edmonston will give the matter a moment's con-

sideration, he must see that the production of hybrids between individuals of different genera, orders and classes, is rendered impossible by the difference of the structure of such plants preventing fecundation; only those plants and animals that most nearly approach each other in structure, being capable of engendering together. But it is stated on high authority, that hybrids have been procured between individuals of different genera. Thus Treviranus describes a hybrid between *Campanula divergens* and *Phyteuma betonicæfolia*; Gaertner, one from *Convolvulus sepium* fecundated by *Ipomœa purpurea*, from *Datura lævis* and Metel fecundated by the henbanes and tobacco, from *Glaucium luteum* fecundated by the poppies, &c.; Wiegmann also obtained hybrids from *Vicia faba* fecundated by *Ervum lens*, and from *Pisum arvense* by *Vicia sativa*; lastly, Knight fecundated the almond with the pollen of the peach.*

Mr. Edmonston has admitted, in his former communication, that genera, orders and classes are pure abstractions, for he has said that Nature only creates species; but we have here two of these abstractions (in a certain sense) copulating and bringing forth hybrids. What has now become of his argument derived from hybridity?

But Mr. Edmonston further says; "It is obvious to every unprejudiced mind, that Nature has created individuals having certain common peculiarities which no other induction from individuals possesses, and to these we give the name of species." I am afraid that this is as unintelligible to me, as my statement of the two senses in which groups are natural appears to be to Mr. Edmonston; but coupling it with the following sentence from Mr. E.'s letter, we shall find that even he allows, after all, that "*species*" is an induction or abstraction, for the terms are synonymous. "The word *species* implies a congeries of individuals having certain common peculiarities and distinctions; and when we say that Nature creates *species*, we mean that she creates individuals having the properties which we attribute to the abstraction — species." This settles the question as regards *species* between Mr. Edmonston and myself; and unless Mr. Forster has something more to bring forward on the subject, the matter must be considered as finally adjusted, for Mr. Edmonston has fully, but probably unintentionally, admitted all that I could desire. I certainly did not expect to proselytize him so quickly, and I congratulate him on arriving at the only sense in which the term is applicable to the three kingdoms of Nature.

* DeCandolle, *Physiologie*, tome ii. p. 703.

Mr. Edmonston has surely mistaken my meaning when he puts in my mouth the statement that "all our groupings have actually an existence in the scheme of Nature." I have merely affirmed that the capability of being thrown into such groups, is a powerful argument for the existence of a plan or scheme in the Divine Mind anterior to the creation of natural objects, and that our groups are nothing more than an attempt to approximate to the Divine plan or order. "Order is Heaven's first law," says Pope, in the double character of philosopher and poet.

The groups in all systems are metaphysical; they are creations of the mind of man, but they are natural in proportion as they place in immediate proximity those objects that most closely resemble each other, or, in other words, have the strongest affinity. But from what I have said above, it is impossible that these groups should have a positive existence in external nature; we can have no personification of any one group; classes, orders, genera, species, are entirely mental. If indeed they are mental, if no personification of them can be shown (and such cannot), then are they entirely metaphysical, and being metaphysical, why taunt me with being "ultra-metaphysical," when the subject-matter of our discourse comes within the domain of that science, and of that alone?

From what has been said above, I would undoubtedly answer Mr. Edmonston, that inasmuch as the groups of both systems are creations of man's mind, they are both artificial, but that, as throwing together those plants that bear the greatest resemblance to each other, the natural system approximates most nearly to the plan which I have supposed to exist in the Divine Mind.

Mr. Edmonston's analysis of Ranunculaceæ does much more than he intended, for it totally destroys the characters of the order. He has rejected all the characters except those derived from the seed, and I complete the work of destruction, by stating that there are numerous orders that possess solid albumen and seeds without arillus, in common with Ranunculaceæ. I am afraid that even the veriest sticklers for the old system will not go so far as Mr. Edmonston, and pronounce Ranunculaceæ a nonentity! But I object to Mr. E.'s plan of examining the characters of natural orders, *in toto*. I maintain that the whole of the characters must be retained, and that the *exceptions* must not be made the rule. There are a very few genera in which exceptions to those characters occur, and these, approximating to other orders in their characters, form those oscillatory groups that

Mr. Edmonston professes himself unable to discover. Now as to these oscillatory groups, it is a curious circumstance that Mr. Edmonston has kindly furnished me with an excellent illustration of an oscillatory group, in the succeeding page to that in which he declares he has never been able to find one! The genus *Detarium* has, it appears, the icosandrous stamens and drupaceous fruit of *Amygdalaceæ*, with the compound leaves of *Leguminaceæ*, and is hence intermediate between the two orders, partaking the characters of each, and intimately connecting them. Both these orders are extremely natural, so much so, that a person completely ignorant of the principles of Botany would be able to group the species composing them together, as bearing the greatest possible resemblance to each other. Now the genus *Detarium* forms the oscillatory group connecting *Amygdalaceæ* with *Leguminaceæ*; belonging strictly to neither, but common to both: and hence this genus may be placed by one botanist under *Amygdalaceæ*, by another under *Leguminaceæ*, according as certain characters are valued by each. But because *Detarium* resembles *Amygdalaceæ* in every particular save its compound leaves, compound leaves form the only distinctive character between *Amygdalaceæ* and *Leguminaceæ*. This, I submit, is an example of false logic, of the drawing forth a general rule from an exception; the making the exception the rule!!!

Every one is capable of classing the common leguminous plants of our gardens and fields into one group; of seeing that the pea and bean and vetch are closely related to each other. Now the fact that the veriest ignoramus is capable of such classification shows that such relationship exists. Now on turning to Withering's Arrangement, I find all the leguminous plants very snugly ensconced under the sheltering wings of *Diadelphia Decandria*; but turning to the descriptions of the genera, I find that *Genista*, *Ulex*, *Ononis*, *Anthyllis* &c. are really monadelphous, while *Pisum*, *Orobis*, *Lathyrus* and others are as truly diadelphous. Again, any moderately intelligent person would select the grasses from any confused heap of specimens, because their resemblance is most striking; but on the Linnæan system this most natural order must be broken up. *Anthoxanthum* is in the same work placed in *Diandria*, while the remainder form part of *Triandria*. But in truth the grasses form part of the following Linnæan classes; *Monandria*, *Diandria*, *Triandria*, *Tetrandria*, *Hexandria*, *Monœcia* and *Polygamia*. This, then, is the exactitude and certainty of the Linnæan system!!! Has it really so great facilities for the detection of species? Suppose a person, who is simply acquainted with

the characters of the Linnæan classes and orders, were to find a monœcious or polygamous grass, would he find it ranged under Monœcia or Polygamia? Two examples have thus been given of natural orders founded by Linnæus himself, obvious to every sagacious mind, which under this arbitrary artificial scheme are distributed through some half-dozen classes!! Let no more be said of the certainty and infallibility of the artificial scheme!

Speaking of the natural system, Mr. Edmonston gives us the two following passages in his last letter, to a comparison of which I wish to draw the attention of your readers. "What a combination of disjointed things — nay, not only disjointed, but a system affected with *fragilitas ossium*, where every bone is broken, and nothing to be seen but here a fragment and there a fragment, a little of everything and nothing complete! Can such a dismembered system, such a collection of debris, be of any real practical use? I should say, No!" But now turn over a leaf, and the following passage, so admirably in unison with the above, meets your view. "Let it be borne in mind that by these remarks I do not mean to say that the natural system is or ought to be thrown aside; let it be studied in its proper place, and it will be productive of much and lasting benefit. It can scarcely be otherwise, since it bears the impress of the great minds of a Jussieu, a Brown, a DeCandolle and a Lindley, [and I would add, which Mr. Edmonston forgets, a Linnæus]; but let it not be foisted forward where it can only disgust and perplex." What! — a combination of disjointed things, a system affected with *fragilitas ossium*, a fragmentary mass, a little of everything and nothing complete—of much and lasting benefit, and bearing the impress of so many and great names!!! Surely there must be some mistake here; such fragmentary systems are not usually the productions of great minds!! Did Linnæus project a fragmentary system, after and in preference to his own primary and more perfect system? Mr. Edmonston has forgotten himself.

A few words on a point I have left unnoticed at the commencement of Mr. Edmonston's letter, and I have done. I have called the Linnæan system a mere index (but a valuable one) to plants, and this seems to have given great offence to the followers of that school. In examining this question, we must bear in mind that the species and genera are common to all classifications; these are agreed upon by all; the difference between the rival systems exists in the higher groups alone — the classes and orders. Now if we confine ourselves to these higher groups, what do we learn of a plant by the Linnæan system? Simply the number and position of the stamens and pistils

— no reference being necessarily made to other parts of the plant. Now this seems to me very like the A, B, C of an index. But in the natural system, the whole plant must be examined before a decision can be pronounced as to the order to which the plant belongs, and thus passing in review the whole structure of the plant, much more knowledge of it must be gained than by merely examining the stamens and pistils. It is true, that in descending to the genera and species, the whole plant will be examined, but this has no reference to the particular system.

In what I have hitherto said, I have not depreciated the Linnæan system below its proper level. I have admitted its great utility in furthering our primary studies of plants; but I deny that it is an arrangement that will satisfy a philosophical mind. If it could have done so, how was it that Linnæus himself propounded a “natural system”?

I must admit that there is considerable difficulty in comprehending the natural system without assistance; but those who have heard Professor Lindley’s lucid demonstrations of that system, will acknowledge that it is of all systems the most philosophical.

I fear that in this and the foregoing communications, I have used many repetitions, but I have endeavoured to avoid them as much as was consistent with the full elucidation of the subject.

I am, Sir,

Your obedt. Servant,

PH. B. AYRES, M.D.

To the Editor of ‘The Phytologist.’

ART. CCXXIV.—*Explanations of the ‘London Catalogue of British Plants.’* By G. E. DENNES, Esq., F.L.S., Secretary of the Botanical Society of London.

THE editorial note appended to Mr. Sidebotham’s letter (Phytol. 478), renders it expedient to offer some explanations about the ‘London Catalogue of British Plants.’ The comments of Mr. Sidebotham are mostly founded on misapprehension of facts. For instance, Mr. S. asserts that *Impatiens fulva* is held to be an introduced species, “because not found in one of the twenty” local Floras consulted. The fact is not so. The number of local Floras in which the several species occur, is given only in indication of their comparative frequency and diffusion; and without reference to the distinction made between

native and naturalised species. *Impatiens fulva* was originally introduced to this country from America, as any botanist would have informed Mr. Sidebotham.

All will concur with the editorial wishes for uniformity of nomenclature, so far as it can now be obtained. The names in works already printed cannot be changed; and just so far as new works introduce new names, so far is the departure from uniformity increased. The sparing adoption of newly invented names, is a characteristic feature of the London Catalogue; and there is only one instance, in the whole Catalogue, of a change in the name of a species, to wit, *Glyceria loliacea*, which shall presently be accounted for. In every other instance, (one or two errors of the press or pen excepted), the authority is given for the species, which shows the name to be one previously in use. The London Society, thus, cannot truly be accused of making extensive changes in nomenclature. All that was done, consisted in the selection of one from among the various names already applied to the same species by different authors. Individual botanists may think that they could have made a better selection of names; but this is a matter of individual opinion or self-complacency.

In selecting the names, the leading rule was that of taking the best known name, although, in several instances, this rule was allowed to yield to other considerations. Thus, it was a question whether preference should be given to *Carex recurva*, as the name best known to English botanists, or to *Carex glauca*, as the name best known to the botanical world in general; and the latter was adopted, because priority was in its favour, and not much confusion was likely to arise from its use. On the other hand, while *Carex Goodenovii* was correctly substituted for *Carex cæspitosa*, this latter name was not substituted for that of *Carex stricta*; because, to take a familiar name from one species, and then give the same name to a different species, seemed the most certain mode of causing error and confusion. A similar reason operated against the name of *Equisetum fluviatile*; although, it is allowed, that Mr. Newman was correct (according to strict rule) in making this transfer of the name from one species to another. But the rule of priority is valuable only in its tendency to prevent confusion, and where strict adherence to it would increase confusion, there seemed sufficient reason for the departure from it.

Glyceria loliacea is a troublesome sort of plant, which comes near *Triticum* in technical character, while it agrees better with a section of the Linnæan genus *Poa*, in general habit. In Steudel's *Nomenclator* nine different names are recorded for it, and others could be

added. Hudson united it with the other Poas, under the name of *Poa loliacea*; and *Glyceria* being a section of the genus *Poa*, the plant in question is called *G. loliacea* in the London Catalogue. In the Edinburgh Catalogue, further subdivisions of the old genus *Poa* were adopted, and this plant was associated with other species of *Poa* or *Glyceria* (*Smith*) under the name of *Sclerochloa*. Thus, putting the two Catalogues in contrast, the increase of generic names was here made by the Edinburgh, not by the London Catalogue.

Without entering more into explanations relative to species singly, it may fairly be assumed, that the proper test of a publication like the London Catalogue, is to be found in its adaptation to the end for which it is published. This Catalogue is expressly stated to have "been prepared chiefly with the object of giving increased facility in the exchanges of specimens, regularly carried on between the Botanical Society of London and its individual members." Some probability that it is adapted to such object, is implied in the fact of its distinctive peculiarities having been suggested by a botanist, who has had many years' experience in the exchange of specimens, both at home and abroad, and who was the first to bring such printed lists into use for the purposes of these exchanges, many years ago. The most important of the peculiarities which distinguish the London Catalogue from all its predecessors, is the attempt to show the comparative scarcity of each species, by means of the local Floras; and it is supposed that few persons will deny some usefulness in this innovation.

Secondly; a distinction is made between species which probably can be obtained for exchange, and species which probably cannot be obtained; and he must be a botanist of small experience who has not found the inconvenience of a list which includes (without distinction) the names of many species of which it is impossible to obtain British specimens. Foreign botanists almost invariably ask for those species, and are disappointed when they receive a parcel without any of them.

Thirdly, the native and naturalized species are also distinguished; the usefulness of such a distinction being practically admitted by the authors of our descriptive Floras, who latterly have done the same. Useful though this be, every good botanist knows well that the distinction cannot always be made with confidence. Thus, Babington describes *Chelidonium majus* and *Impatiens Noli-me-tangere* as native species; yet Hooker marks the latter as a non-indigenous plant, and Henslow marks the former "possibly introduced by the agency of man." If Mr. Sidebotham can accomplish a task, only attempted by Smith, Hooker, Henslow, Babington, Watson and others, by all

means let him perform the same, and make a "perfect" list of naturalized plants.

The continuous numbering of the specific names has been objected to, (Phytol. 933). For an index to herbaria, in which each genus only had a separate cover, the editorial preference for generic numbers would be judicious. In a duplicate store on a large scale, it is found practically more convenient to have a separate cover for each species, with the numbers marked outside, for convenience of ready reference and arrangement; since botanists apply for species and varieties, not for genera.

The London Catalogue, like its predecessors, has faults, both typographical and authorial; and it has not the novelty which Mr. Sidebotham would seem to give it credit for. A well compiled (but anonymous) Catalogue of British Plants, in the natural arrangement, and with synonymes, was published some six or eight years ago; which is still in print.

G. E. DENNES.

ART. CCXXV.—*Varieties.*

493. *The Nomenclature of Ferns in the 'British Flora' and the 'London Catalogue of British Plants.'* In your present number (Phytol. 497) a passage occurs, which is calculated to convey a wrong impression respecting the extent of dissimilarity between the names of ferns in the Flora and Catalogue. The Filices and Pteroides (an abbreviation of Pteridioides — Fern-like) are grouped under twenty-two generic names in the Catalogue, twenty of which are identical with those in the 'British Flora.' Two other generic names are necessarily added to the twenty, in consequence of two genera in the Flora being subdivided into four genera in the Catalogue. Among fifty-seven specific names of the same plants in the Catalogue, forty-eight correspond with those of the British Flora. Of the other nine specific names, five belong to additional species (or varieties "raised to the rank of species") adopted from Mr. Newman and 'The Phytologist;' four only being changed names — *Trichomanes speciosum*, *Lastræa spinosa*, *Equisetum Telmateia* and *E. umbrosum*. The first of these four was adopted on the authority of Madeira specimens, collected and labelled by Dr. C. Lemann, which appear connected with both forms of the Irish plant (*speciosum* and *Andrewsii*) through other specimens collected in the Azores. The remaining three names were taken up on the faith of Mr. Newman's investigations, first pub-

lished by that author, as I think, after the 'British Flora' was out. Though I do not know upon what authority the reviewer (*loc. cit.*) has "fathered" the London Catalogue upon my "pen," it would now be useless to disavow any connexion between them. — *Hewett C. Watson ; Thames Ditton, May 28, 1844.*

494. *Bentall's Drying-paper.* I have tried the new paper manufactured by Messrs. Bentall of Halstead, for drying plants, by placing specimens of several kinds into it, and not again examining them until they became dry, and find that it is well deserving of commendation. The colours of the flowers and leaves are well preserved. I placed eight thicknesses of paper between each layer of specimens. This paper is fully as good as, if not better than, the "*chalk-paper*," employed here, which is so much esteemed as to have been sent to distant parts of the kingdom, and even to S. America and Australia. — *Charles C. Babington ; St. John's College, Cambridge, June 1, 1844.*

495. *Note on Primula elatior.* I must request permission to enter a strong protest against Mr. Newman's endeavour (Phytol. 996) to give a new name to this plant; not from any objection to paying the honour due to Jacquin for discriminating a true species amongst these variable plants; but in order to prevent the addition of an unnecessary synonym, and also because Jacquin is undoubtedly the first botanist in modern times (that is since the time of Linnæus) who distinguished the plant specifically, and had therefore a right to give it a name. The *P. veris* β . *elatior* (Linn.) may have been intended to include Jacquin's plant, as well as the umbellate plants which connect the cowslip and primrose; but as Linnæus only employed the name to designate a variety, there was nothing to prevent Jacquin from giving it to a species. The question is not affected by Jacquin's belief or otherwise in the identity of his species and the Linnæan variety, for that is only an error in determining a synonym. The confusion of which Mr. Newman justly complains, is not caused by the name of *elatior* being used specifically; but by many British botanists applying it to the "spurious oxlips" so often found in this country, and fancying that they are the *species* thus named. It therefore becomes necessary to call it "Jacquin's oxlip," or that of "Bardfield," until English botanists learn to distinguish the true plant from the spurious one. I trust to hear no more of *P. Jacquinii*, Newman. It may be as well to add that Professor Henslow finds the *P. elatior* (*Jacq.*) in his parish of Hitcham, in Suffolk, from whence I possess specimens, by his kindness.—*Id.*

496. *Note on Anthyllis vulneraria.* Mr. Greenwood's note (Phytol. 1000) has led me to examine the flowers of this plant, and I find that on the Cambridgeshire examples they are monadelphous. One filament is free at the base and summit, but quite joined to the other nine throughout most of its length. I hope Mr. Greenwood will carefully re-examine his plant, and if it is really diadelphous, that he will allow me to examine a specimen of it.—*Id.*

497. *Note on Botrydium granulosum*, Grev. Most of the shallower ponds in this neighbourhood have become dry from the long want of rain to replenish them, and this circumstance has brought to view the above curious little algaoid plant, which I have often looked out for, but could never before meet with. Walking with a friend from Warwickshire along the Henwick road near Worcester, the bed of a little pond opposite Henwick farm attracted our notice, as it appeared almost as if covered with hoar frost, though on the morning of the 3rd of June, and as we trod on it, our ears were surprized with a crackling as if of icy particles. On stooping down, however, I found that the whole bed of the pond was occupied by an aggregated growth of *Botrydium granulosum*, Grev., the rupture of whose globules caused the noise we heard, and the frosty appearance presented to view I found was occasioned by innumerable *farinose granules* that densely covered the exterior of the green spheroidal vesicles forming the plant. These *exterior* granules seem not to have been noticed by observers, though very conspicuous, unless Sir W. J. Hooker alludes to them in his account of the *Botrydium*, where he says that "the membranous coat has *internally* a number of small granules," (Brit. Flor. ii. 321). When the vesicles collapse and become cup-shaped, they then indeed appear superficially internal, but they cover all sides of the globule before the fluid within it is spent. The size of the green spherical vesicles is subject to great diversity, as in all globular structures, being very minute where they are crowded in their growth by pressing upon each other, averaging generally the size of a mustard-seed; but when standing singly, nearly double that size, or as large as a currant. They have rather a tough skin, for it requires some degree of pressure to burst them by the hand, though of course breaking, with a crackling noise, beneath the tread. In general, the vesicles collapse without bursting, though when forced to do so, or when pricked with a needle, the included fluid is diffused externally, the skin sinks down, and the plant presents the appearance of a *Peziza*, or where there are many together, like the cells of a wasp's nest upon a small scale. Having at the time only a pamphlet to put my specimens in,

they were rather pressed before I returned home, and by the next morning, all the globules had collapsed, and their contents having dried up, the residuum appeared in the form of a green powder diffused upon the paper — doubtless the fructifying sporules of the Botrydium. This reproductive economy seems not to agree very well with the filamentose Vaucheriæ with which the present plant is associated, but rather suggests a closer relation to the Fungi, or at least the Nostochineæ. Its appearance probably depends on meteoric circumstances, in consequence of which it is seldom to be met with, and its existence even under favourable coincidences is but of short duration. The exposed bottoms of ditches in the present dry summer may possibly reveal the Botrydium in various localities to the Cryptogamic botanist; and having been thus enabled to note it, and as, according to Hooker, “few localities are published,” I have thought it might be interesting to bring it forward again under the eye of the observer.—*Edwin Lees; Powick, Worcestershire, June 8, 1844.*

498. *Note on the habitat of Cœnanthe pimpinelloides.* In the report of the proceedings of the Edinburgh Botanical Society (Phytol. 1005), I notice a statement by Mr. Ball, enumerating three British species of Cœnanthe, and remarking, that Cœ. pimpinelloides is *very rare*, the author having seen only one specimen, gathered by me at Forthampton, Gloucestershire. I should rather say the plant was of *uncertain occurrence* than very rare; as for three years that I resided at Forthampton, it was so plentiful in the two orchards adjoining Forthampton cottage, as to form no inconsiderable portion of the hay of those pastures, which are on rising ground, ascending towards some of the highest land in the parish, and the soil a dry, hard, red marl. I have not had an opportunity of inspecting the spot this year. Last season, the plant was very abundant in several meadows at Powick, where I am now unable to find a single specimen. These meadows were dry and hilly. I know nothing about Cœ. Lachenalii, which Mr. Babington describes, though omitting Cœ. pimpinelloides; but there is some discrepancy which requires correction, as to the habitat of the latter. This is stated by Sir W. J. Hooker, Smith, and I believe most if not all authorities, to grow in “salt marshes,” while Cœ. peucedanifolia is said to be found in “fresh water.” This is certainly a mistake. I have never observed Cœ. pimpinelloides except in inland places, on hilly, and often the *very driest ground* of the neighbourhood; while as constantly do I find Cœ. peucedanifolia in *marshy* places, whether of fresh or salt water. Last year, when on the coasts of Devon and South Wales, I was very attentive to this cir-

cumstance; but the species growing in the littoral marshes there invariably proved to be *Æ. peucedanifolia*. The latter I also found, this spring, growing plentifully in a wet part of the island pasture called the Severn Ham, at Tewkesbury, Gloucestershire. The spherical knobs on the roots of *Æ. pimpinelloides*, extending some distance from the plant, are very characteristic when contrasted with the elliptical sessile knobs of *Æ. peucedanifolia*, and I have found them pleasantly edible. They are not represented in the 'English Botany' figure. It is indispensable to examine the roots, for the radical leaves of *Æ. pimpinelloides* soon wither, and then the plant, without very close investigation, can scarcely be distinguished from *Æ. peucedanifolia*.—*Id.*

499. *Note on Carex paradoxa?* While consulting Hooker's 'Companion to the Botanical Magazine' on another subject, a few days ago, I met with the following passage in Mr. Woods' interesting account of a 'Botanical Excursion in the North of England,' in 1835. As it relates to plants which have recently caused a good deal of discussion, I think it entitled to a place in 'The Phytologist.' Mr. Woods says: — "Rosa Doniana grows at the top of a woody bank a little above Croft, on the Yorkshire side of the river [Tees]; and near Halnaby, on the same side, there is a small strip of boggy ground, mostly covered with brush-wood, on the left hand of the road from Croft, which affords *Ranunculus Lingua*, and a *Carex*, which is perhaps a small variety of *C. paniculata*, but not forming dense tufts, and therefore in some degree approaching to *C. teretiuscula*. The beak also is not abrupt, as described in *C. paniculata*, but tapers gradually from the fruit. Hooker (Brit. Fl. ed. 3. p. 395) mentions a continental species, *C. paradoxa*, which is intermediate between these two. That species, however, is described as forming very large and dense tufts (see Gaudin, Fl. Helv. 6. 43), and therefore can have nothing to do with this plant. Some difficulty has arisen from the figure of *C. teretiuscula* in 'English Botany,' where the scales are altogether brown, whereas, according to Gaudin, *l. c.* the scales of *C. teretiuscula* in a young state have uniformly a whitish border. In my plant they have a pretty wide scariose margin." Which of the two plants can this be — *C. paradoxa*, which is now known to grow in another part of Yorkshire, or the variety of *C. teretiuscula*? Will Mr. Woods kindly examine his specimens, and favour the readers of 'The Phytologist' with the result. Or the plant may be still growing in the locality where Mr. Woods met with it, and may perhaps be found by

other botanists. — *Geo. Luxford*; 2, *Ebenezer Row, Kennington Lane*, June 22, 1844.

500. *Flora of the Shetland Islands*. Our correspondent Mr. T. Edmonston, jun. has forwarded to us a prospectus of his forthcoming 'Flora of the Shetland Islands,' which is to be published by subscription. Mr. Edmonston has been so long and so honourably known as a zealous and successful investigator of the Natural History of these islands, and more especially of their Botany, that we deem it unnecessary to do more at present than to announce his intention of publishing the result of his researches in an accessible form.—*Ed*.

ART. CCXXVI. — *Notice of 'The London Journal of Botany.'* By SIR W. J. HOOKER, K.H., LL.D., F.R.A. & L.S., &c. No. 30, June, 1844. London: Baillière, Regent St.

IN a notice of the 'London Catalogue of British Plants,' in the June number of the 'London Journal of Botany,' we find some observations on the review of Mr. Newman's 'History of British Ferns' which lately appeared in our pages (Phytol. 945). These observations appear to require from us something in the shape of explanation; we shall therefore, in the first place, lay before our readers the whole of the observations referred to, and then, in all due courtesy, proceed to offer a few remarks upon such parts as seem to be not entirely consistent with facts.*

Speaking of the 'Edinburgh Catalogue of British Plants,' the editor of the Journal proceeds: —

"Nevertheless, as being the fullest 'Catalogue of British Plants' extant at the time of the publication of the 5th edition of the 'British Flora,' the author of that work deemed it entitled to quotation among the synonymes, 'as one in which especial pains appear to have been taken to form a *complete* list of the native flowering plants and ferns of Great Britain.' This little compliment, paid to the labours of those who compiled the Catalogue, has been strangely made the subject of censure in a recent number of the 'Phytologist,' (a work not always distinguished by courtesy of style); where, after speaking of the 'Nomenclature' of Mr. Edward Newman, as employed in the first edition of his 'History of British Ferns,' and promulgated in 1839-40,—the reviewer assures us, 'there was a general denunciation of changes so radical and so complete;' but, after the appearance of Mr. John Smith's paper on the same subject, 'Botanists, who one month proclaimed the absurdity of Mr. Newman's inno-

* The editor thinks it right to state that he is not the author of the review commented upon in the 'London Journal of Botany.' It was written and sent for insertion by a correspondent, who has paid great attention to the British Ferns.

vations, were seen the following month bending the supple knee to the same innovations;’ and ‘Dr. Balfour and Mr. Babington, by adopting the alterations, were the means of disseminating them from John o’Groats to the Land’s End.’ It seems the author of the *British Flora* did not bend the supple knee to the innovations, and the reviewer proceeds: ‘But in the midst of its successful career, the new nomenclature met a most decided check in the publication of the fifth edition of Sir W. J. Hooker’s *British Flora*, wherein we were astonished to find the changes introduced by Mr. Newman, not only *fathered* upon the authors of the ‘*Edinburgh Catalogue*,’ but the new names given as synonymes, and *the old nomenclature restored in all its glory*.”—p. 290.

To the above passage is appended the following long foot-note.

“It is far from being our general intention to notice remarks made in *reviews* of Books: but the Editor of this Journal, as the Author of the ‘*British Flora*,’ must in justice to himself declare that he is not aware that he has in any way acted unfairly by Mr. Newman. He presumes by the expression of ‘*fathering* the changes introduced by Mr. Newman upon the authors of the *Edinburgh Catalogue*,’ it is meant to imply that he has given to those gentlemen a credit for names (‘a nomenclature’) which is due to Mr. Newman alone. But surely no one will consider that to be the case, who has seen the little explanation in the preface to the *British Flora*, (ed. 5, p. viii.). It was never meant to imply that the Editors of the Catalogue were the *authors* of those names: and really upon looking at the places among the Ferns where the ‘*Edinb. Cat.*’ is quoted, the difference of names is so trifling that it is marvellous how such a charge could, in fairness, any way be made. One would suppose that by ‘the old nomenclature being restored in all its glory,’ that the author had gone back to the days of Dillenius and Ray; but, so far at least as the *Edinburgh Catalogue* is concerned, the difference of names, ‘fathered’ upon the *Edinb. Cat.*, which Mr. Newman’s reviewer claims for him, and in the *British Flora*, amounts to these. In the latter work, the genus *Aspidium* of Swartz is divided into two sections; 1st. those species with orbicular involucre, fixed by the centre (*Aspidium*, Br.), and 2ndly. those with reniform involucre, fixed by the sinus, (*Nephrodium*, Rich, Br.) The first are called *Polystichum* in the *Edinburgh Catalogue*, while the latter are called *Lastræ*; and in the genus *Asplenium*, as defined in *British Flora*, 2 species (*A. Filix fœmina*, and *A. fontanum*), are, in the *Edinb. Cat.*, called *Athyrium*. *Cryptogramma* of Brown and Hook. is called *Allosorus* in the *Ed. Cat.*; *Blechnum boreale*, Sw., is called *Lomaria Spicant*, and *Trichomanes brevisetum*, Br. and Hook. is the *T. speciosum* in *Ed. Cat.* Now the whole of these changes (we are not discussing the merits or correctness of the names) no more originated with Mr. Newman, they are no more his original ‘nomenclature,’ which is declared ‘to be *toto cælo* at variance with that so long in use,’ than they did with the authors of the *Edinburgh Catalogue*. The genus *Polystichum* was invented by Roth in the year 1800, and is absolutely identical with *Aspidium*, as it stands in the *British Flora*; including both *Polystichum* and *Lastræ* of the *Edinburgh Catalogue*. *Lastræ* originated in M. Bory de St. Vincent in 1824, and was formed to include the *Polypodia*! *Oreopteris*, *Thelypteris* and *unitum*. Presl in 1836 altered the character, to make it comprise certain Aspidiaceae plants, banished all Bory’s species, and was the author of the names of the *Lastræ* as they stand in the *Edinb. Cat.* *Athyrium* also is a genus of Roth (1800), adopted (in part by Presl), and the species above mentioned are of the same antiquity. We are well aware that *Cryptogramma crispa*, Br. is the *Allosorus* of Bernhardt, (1806); but the *Cheilanthes odora*,

Sw. is the plant which Bernhardt seems to have had in view in constituting that genus; and Presl has not improved the genus by the heterogeneous species he has mixed up with it, and which have little in common with the plant in question. So long ago as 1810, Mr. Brown expressed his opinion that *Blechnum boreale* might perhaps be referred to his *Stegania* (*Lomaria*, Willd.); and in 1811, Desvaux named it *Lomaria Spicant*. Our view of the fructification differs from that of these authors, and we have not preserved the name of Swartz without stating reasons for it, and giving a figure, which in our mind, at least, confirms those views, (see Brit. Fl. ed. 5, TAB. X. f. 10.) With regard to Mr. Brown's name of *Trichomanes brevisetum*, we may here extract what is but just printed respecting it in the '*Species Filicum*,' p. 126, where the author expresses his regret that he was under the necessity of occupying so much space in his attempt to unravel the difficulties which have always attended the synonymy of this plant, and respecting which Sir Jas. E. Smith (whose writings on the Ferns the reviewer, in the '*Phytologist*,' treats with marked contempt), said, nearly thirty years ago, that 'few plants of almost any country have caused more enquiry, or more diversity of opinion, than this Fern.' Unquestionably the *T. speciosum* of Willd. is the same species as our *T. brevisetum*, though a native of Teneriffe; and, as such, the name has the right of priority over that of Mr. Brown; but after a most careful investigation of other specimens of *Trichomanes*, and especially the *T. radicans* of Swartz, from Jamaica, we must declare ourselves at issue with the reviewer in question, who, notwithstanding that 'Mr. J. Smith had labelled a var. of the Irish *T. speciosum*, lately discovered by Mr. Andrews, as *T. radicans*, Sw.;' nevertheless 'thinks Mr. Newman has exercised a sound discretion in keeping the name of *T. radicans* quite out of view.' The author of the '*Species Filicum*' has come to a different conclusion, and having satisfied himself of their identity, ventures to retain the name of *radicans*. It might be supposed that the reviewer was of the same mind when he says, (Phytol. p. 956), 'it was held to be impossible that a *tropical* plant should exist in Ireland.' He surely does not take Teneriffe and Madeira, the recorded habitats of *T. speciosum*, to be within the tropics. Let it be observed that Mr. Newman gives no authority for the genera *Polystichum* and *Lastræa* in his Synoptical Table of British Ferns, p. 6, but he informs us (p. 8) that these 'have not been employed by any previous writer on the British Ferns.'

"One word on another remarkable passage of the reviewer, who pronounces Mr. J. Smith's Arrangement of the genera of Ferns as 'perhaps the most profound and useful treatise ever presented to the Linnæan Society.' Knowing, as the Editor of this Journal does, the character of Mr. J. Smith, and his love of truth, he hesitates not to say that such an overstrained compliment will be far from gratifying to him. Of the merits of his Memoir, the Editor entertains a very high opinion, and of his judgment in discriminating types of genera or subgenera, and it has been held a privilege to afford publicity to that very paper in the pages of this work; and further, to give figures of Mr. Smith's new genera (see '*Genera Filicum*,' passim): but great as is his merit in the 'Arrangement,' now mentioned, it rises much higher in our esteem on account of the candour with which he speaks of his predecessor in the same line; and it detracts nothing from Mr. Smith's merit that Presl was his predecessor in these innovations, for the two writers worked wholly independently of each other. "I had nearly," says Mr. J. Smith, "completed my arrangement, when I received a copy of Presl's '*Tentamen Pteridigraphiæ*,' a work published at Prague in 1836, but not seen by me till 1838. That author's opinions so nearly coincided with mine, that it might seem

as if a communication of ideas had passed between us; but, after allowing him due credit for his labours, I must still continue to differ from him in a number of important points; yet in order to avoid adding synonymous generic names, I have revised my original ones, and in all cases, where Presl's character of his genera are conformable to my view, I have adopted his names.' ”

In the following remarks we shall confine ourselves as much as possible to the plain *facts* of the case, without in general attempting any explanation of the reviewer's *opinions*. We will also endeavour to follow the order of the editor's strictures.

First, then, with regard to the “little compliment” said to be made the subject of the reviewer's censure. We do not clearly perceive in what way the simple statement of a fact can be construed into censure. That the payment of this “*little compliment*” has been in some degree censured in preceding pages of ‘The Phytologist,’ we are willing to admit; but in the passage alluded to we must confess ourselves unable to discover the censure complained of. When the 5th edition of the ‘British Flora,’ was announced, the botanists of this country naturally looked forward to its appearance with a hope that the author would gladly embrace the favourable opportunity of raising the Botany of Britain to something like a level with the state of the science on the continent. This, the author of the ‘British Flora,’ from his eminent attainments in the science, his almost unequalled store of materials, and his exalted station, was certainly well qualified to accomplish, and was no more than the botanists of Britain had a right to expect from him. His labour, too, would have been rendered less onerous, from the publication of the ‘Edinburgh Catalogue of British Plants,’ “in which especial pains had been taken,” not only “to form a *complete* list of the native flowering plants and ferns of Great Britain,” but also (and this surely is a point of equal importance), “as far as possible to make the nomenclature of British plants correspond with that adopted by the best continental authors.” And in endeavouring to effect this object, the compilers of the Catalogue were “guided in their amendments chiefly by the works of DeCandolle, Koch, Nees von Esenbeck, Kunth and Leighton.” However, when the 5th edition of the ‘British Flora’ appeared, great was the disappointment of our botanists to find that very little more had been done in its preparation, than to prefix a Linnæan index or key, to adopt the natural arrangement for the body of the work, in place of that of the Linnæan artificial system which had been used in the preceding editions, and to add a few explanatory plates at the end:

while, so far as nomenclature and characters were concerned, the work remained almost *in statu quo*.

In the Edinburgh Catalogue, when the name of a genus or species was changed, the compilers paid the author of the 'British Flora' the compliment of giving a reference to the name under which it appeared in the fourth edition of that work. In a mere Catalogue of names no more than this could be looked for. But, in a standard work like the 'British Flora,' if the author saw reason not to adopt the changes proposed in the Edinburgh Catalogue, we have always held the opinion, and in this we are not alone, that if he thought fit to notice the Catalogue at all, he was bound to pay the compilers a higher compliment than the somewhat equivocal one of merely deeming it "entitled to quotation among the synonyms," and that, too, simply on the ground of especial pains appearing to have been taken to render it a *complete* list of British plants. The compilers of the Catalogue, having endeavoured to place the nomenclature of British plants on a sounder basis than before, we consider that the least that could have been expected, if their changes were not adopted, was that the reasons for their rejection should have been stated; and such reasons, coming from the author of the 'British Flora,' would have been received with all the deference and respect to which, emanating from such a quarter, they were fairly entitled. The rejection of these proposed changes without such reasons being adduced, has been the only ground for censure on this subject, which may at any time have been expressed in our pages.

But, it may be asked, what has all this to do with the question at issue between the editor of the 'London Journal of Botany' and the reviewer of Newman's 'History of British Ferns.'? We answer, — Much every way! — inasmuch as among the rejected changes in nomenclature were several relating to British ferns, which, having previously been proposed and introduced by Mr. Newman, were thought worthy of adoption by the compilers of the Edinburgh Catalogue. We advisedly say, *introduced* by Mr. Newman — not *invented*; for nowhere in his 'History of British Ferns,' does he claim for himself the merit of having *invented* a single name. And in blaming the reviewer for claiming for Mr. Newman the merit of having originated or invented "a nomenclature," we cannot help thinking that the editor has been fighting with a shadow of his own raising.

We now pass on to the editor's declaration, that he is not aware of having in any way acted unfairly by Mr. Newman. Previously, perhaps not; but in the foot-note above quoted, and in one paragraph

more especially, we fancy we discover such symptoms of unfair dealing, that we cannot let slip this opportunity of endeavouring to place the matter in its true light.

After enumerating the discrepancies between the Edinb. Catalogue and the 5th edition of the 'British Flora,' the editor continues : — "Now the whole of these changes, * * no more originated with Mr. Newman, they are no more his original "nomenclature," * * than they did with the authors of the Edinburgh Catalogue.* Now upon an impartial examination of the review, we cannot perceive that the reviewer anywhere claims for Mr. Newman the merit of having originated this "nomenclature," and certainly Mr. Newman nowhere claims it for himself, as we think we shall presently be able to prove, from the evidence kindly laid before us by the editor himself.

With a few exceptions, the editor might have found nearly all that he has said on the authorship of certain genera, in the 'History of British Ferns' itself. For instance, he says that "The genus *Polystichum* was invented by Roth in the year 1800, and is absolutely identical with *Aspidium*, as it stands in the British Flora! including both *Polystichum* and *Lastræa* of the Edinburgh Catalogue." So far the editor; now for Mr. Newman. At p. 36 (ed. 1) of his History, under *Polystichum aculeatum*, he says, "This genus was established by Roth, and has been adopted by DeCandolle and Schott;" and the following passage occurs at p. 11, 2nd edition, "*Genus Polystichum*, Roth. Involucre attached by its centre. This genus includes all the species I have placed under *Lastræa*; it was first restricted by Schott to the congeners of Roth's typical species—*Lonchitis*." If now we turn to p. 166 of the 2nd edition of the History, we find a passage bearing a remarkable family likeness to the above quotation from the editor's foot-note. "The genus *Polystichum* was established by Roth in his 'Flora Germanica,' in 1800, and is so far synonymous with Swartz's genus *Aspidium*, published in the same year, that both included a long list of the same species."

The editor proceeds : — "*Lastræa* originated in M. Bory de St. Vincent in 1824, and was formed to include the *Polypodia*! *Oreopteris*, *Thelypteris* and *unitum*. Presl in 1836 altered the character, to make it comprise certain *Aspidiaceæ* plants, banished *all* Bory's species, and was the author of the names of the *Lastræa* as they stand

* It will be seen on a reference to the original, that the sense and bearing of the passages here quoted are in no wise affected by the omissions.

in the Edinb. Cat." With reference to this passage we would ask, if Presl "banished *all* Bory's species," how it happens that *Oreopteris* and *Thelypteris* are retained, not only in the Edinburgh Catalogue, but also in Presl's own *Tentamen*? For in the latter, we find *Thelypteris* and *Oreopteris* holding the second and third places in his §. 2. *THELYPTERIS*. In his *Synopsis*, ed. 2, Mr. Newman gives Bory as the authority for the genus: while at p. 185 of his *History*, ed. 2, under *L. Thelypteris*, he states that "Botanists seem scarcely agreed as to the genus to which this fern should be referred. Presl places it in Bory's genus *Lastræa*; Schott constitutes a genus (*Thelypteris*) purposely to receive it, and gives to the species the name of *palustris*; and Sir W. J. Hooker, in the fifth edition of his 'British Flora,' makes it an *Aspidium*: thus we have three of the highest, as well as most recent authorities, completely at issue on the question."

Next with regard to *Athyrium*. The editor's words are these: — "*Athyrium* also is a genus of Roth, (1800), (adopted in part by Presl), and the species above mentioned [*A. Filix femina* and *fontanum*] are of the same antiquity." At p. 61, Mr. Newman says: — "In opposition to the views of many eminent botanists, I feel inclined to return the Lady fern to the genus *Athyrium* of Roth, which I think must also include the *Allantodia australis* of Brown. I doubt whether I can agree with Presl in placing *Asplenium Halleri* and *fontanum* in the same group."

With respect to *Allosorus*, the editor observes, "We are well aware that *Cryptogramma crispa* Br. is the *Allosorus* of Bernhardt, (1806); but the *Cheilanthes odora*, Sw. is the plant which Bernhardt seems to have had in view in constituting the genus;" Mr. Newman, "It [*A. crispus*] has by three eminent botanists been made the type of a new genus; viz. by Bernhardt, under the name *Allosorus*; by Desvieux, under the name *Phorobolus*; and by Brown, under the name *Cryptogramma*. The name I have adopted has the claim of priority." —p. 17.

And lastly, with regard to *Lomaria*: the editor says "So long ago as 1810, Mr. Brown expressed his opinion that *Blechnum boreale* might perhaps be referred to his *Stegania* (*Lomaria*, Willd.);" and in his *Synopsis* Mr. Newman says of *Stegania*, "Apparently identical with *Lomaria*."

We have been thus particular in quoting parallel passages, in order to show that Mr. Newman was careful to give the authorities for the generic names employed by him. To this we shall presently return.

As we do not feel disposed to lengthen this article by entering upon the discussion of the question of identity of *Trichomanes speciosum*, &c., we will now proceed to analyze what we cannot but look upon as an unfair attempt on the part of the editor, to fix upon Mr. Newman the intention of appropriating the authorship of genera to which he had no claim. At the end of the first paragraph of the footnote quoted above, and so far removed from any observations to which it could with propriety belong, as to have the appearance of an afterthought—a capital hit, too good to be lost,—will be found the following passage. “Let it be observed that Mr. Newman gives no authority for the genera *Polystichum* and *Lastræa* in his Synoptical Table of British Ferns, p. 6, but he informs us (p. 8) that these “have not been employed by any previous writer on the British Ferns.”—Now, looking on this passage as it stands here, we ask, would not any one understand it as implying that Mr. Newman thereby intended to appropriate to himself the honour of founding these two genera? On turning however to the page indicated (in the 1st edition, though not so stated by the editor) we were grieved to find a most palpable instance of *suppressio veri*—of stating *the truth*, but not *the whole truth*—which we must consider somewhat uncandid, to say the least of it. The whole passage, fairly quoted, is this. “The name following the genus is that of a *British* [so in the original] author who has employed it. The genera, for which no authority is given, have not been employed by any previous writer on the British Ferns. The works in which the genera will be found are these,” &c., followed by the names of the British authors referred to with the titles of their works. It will be seen that the omission of the first sentence by the editor, materially alters the sense; and, coupled as this is with his own remarks, so emphatically introduced by “Let it be observed”! we must suppose that the editor wished it to be understood as every person would be sure to understand it, without referring to the ‘History of British Ferns’ for the key. We cannot, however, comprehend why *Polystichum* and *Lastræa* alone should have been selected as examples of Mr. Newman’s aptitude for genus-making, seeing that *Cystopteris*—the genus immediately preceding the chosen ones—is in the same category, being, like them, without any authority in the Synoptical Table.

We could easily extend these remarks to a much greater length, but by this time our readers must be heartily tired of the subject. Claiming indulgence therefore for a few observations on the last paragraph of the footnote, we will afterwards conclude.

Every one who has the pleasure of being acquainted with Mr. J. Smith, must entertain the highest regard for that gentleman, both on account of his extensive knowledge of Botany, the modesty by which his attainments are veiled, and his readiness to impart information. Mr. Smith's candour, too, in speaking of his predecessor's labours, is well known. Why, therefore, the word *candour* should have been printed in ominous italics, we cannot divine, unless, indeed it be intended to imply that there has been *a want* of candour on the part of some other party "in the same line." Now, coupling this with the preceding remarks on Mr. Newman, we must suppose that the intention of the editor has been to charge that gentleman with a want of candour in speaking of the labours of his predecessors. We fearlessly invite any unprejudiced individual to examine Mr. Newman's History of British Ferns, either the 1st or 2nd edition, and point out, if he can, a single instance in which Mr. N. has omitted to speak with candour of *his* predecessors "in the same line," or neglected to acknowledge the source from which any portion of his information has been derived. More than this, we again assert that Mr. Newman has in no case claimed the merit of having *invented* the generic names used by him in his History; and as a proof of his candour, we will conclude the subject by quoting from the 'History of British Ferns,' a parallel passage to that given by the editor from the writings of Mr. J. Smith.

"Mr. Smith, of the Royal Botanic Garden at Kew, has paid great attention to the venation of Ferns; he has prepared an essay on this subject, which I trust we shall shortly see in print. * * *

Mr. Smith having, in the most unreserved manner, communicated to me his own ideas on the subject of arrangement and nomenclature, I was delighted to find, that, with very few exceptions, our views were similar: in one or two instances I was obviously wrong, and in these instances I was too glad to have the opportunity of rectifying my errors by the aid of his superior knowledge of exotic genera. In a few instances we still differ, and in announcing this, I fear I shall be considered as pronouncing my own condemnation: still I venture to pursue my way, and 'by an earlier appearance in the literary horizon, give myself the chance of what the astronomers call an *Helical rising*, before the luminary in whose light I am to be lost shall appear.'

"In making out my list of genera I have followed no other rule than that of priority; and if, in any instance, I have departed from this rule, the departure has been entirely unintentional, and I shall

be glad to be informed, in order that I may take an early opportunity of correcting my error.”—p. 3, 1st edition.

Surely there is no want of candour here ; whatever instances of it the editor may fancy he has perceived in other parts of Mr. Newman’s writings !

In concluding these remarks, penned “more in sorrow than in anger,” we must express our regret that the editor of the ‘London Journal of Botany’ should have taken a step which we cannot but look upon as one unworthy the position he holds among botanists. We considered it due to the editor of the Journal to give insertion in our pages to the whole of his strictures, and no less due to our readers and to ourselves, to make an attempt to clear up certain passages in the extracts, which might tend to convey erroneous impressions; and having done this, we bid farewell to an unpleasant task.

ART. CCXXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

June 7, 1844. — J. Reynolds, Esq., Treasurer, in the chair.

Specimens of *Ænanthe peucedanifolia* and *Æ. pimpinelloides* were exhibited, accompanied by notices of their distinctive characters and habitats; by Edwin Lees, Esq., F.L.S. Much uncertainty and confusion having prevailed among British authors and distributors, in regard to the distinctions between these species, the views of Mr. L., founded on good opportunities for observation, are deserving of particular attention. The following condensed abstract will explain the conclusions formed by this botanist.

First.—*Æ. peucedanifolia* always grows in wet places, and is found both by salt and fresh water; while *Æ. pimpinelloides* is found in dry ground only.

Secondly. — The characters derived from the form of the radical leaves, and the presence or absence of an involucre, will not prove sufficient to prevent confusion; but the rounded tubercles upon the roots of *Æ. pimpinelloides*, will readily serve to distinguish that species from *Æ. peucedanifolia*, in which the tubercles are elongate and sessile.

Thirdly. — There is some difference in the fruit of the two species, though the materials in the possession of Mr. L. are not sufficient to state this with precision and certainty.

Mr. L. thus attaches the first importance to the form of the root, as a distinctive character, and the circumstance should instruct collectors to be mindful of the value of the root.

Specimens collected by Mr. L. afforded the principal reason for retaining *Œ. pimpinelloides* as a British species, in the London Catalogue, in preference to the adoption of Mr. Babington's change to *Œ. Lachenalii*; and one of the same specimens communicated to Mr. Ball, induced that excellent botanist to admit *Œ. pimpinelloides* as well as *Œ. Lachenalii* among the indigenous species, (*Phytol.* 1005). Three species, not two only, should therefore now be looked for, and the confusion and uncertainty may thus be removed.

Most of the specimens hitherto sent to the Society have proved quite useless through the absence of roots and fruit, but it is earnestly requested by the Council, that contributors will collect specimens, with root and fruits from as many localities as possible.

Some highly interesting examples of the Irish Saxifrages, belonging to Haworth's genus *Robertsonia*, were exhibited from Mr. Andrews, who had obligingly sent living plants as well as dried specimens. Two of the specimens were sent in record of the fact, lately doubted or denied by the accurate Mr. C. C. Babington, that the Pyrenean forms of *S. umbrosa* and *S. Geum* (with crenate leaves), are certainly native in Ireland; the specimen of *S. Geum*, indeed, being considered "even more obtusely crenate than Mr. Babington's figure (No. 8) from the Pyrenean plant." These specimens were collected "this year, from the mountains to the south of Brandon mountain, County of Kerry."

S. hirsuta is considered by Mr. Andrews to be a hybrid form between *S. Geum* and *S. umbrosa*, "as many of the varieties present characters leaning either more or less to the one species or the other." *S. elegans* is deemed by Mr. A. to be simply a variety of *S. umbrosa*. And after careful examination of the forms of *S. hypnoides*, he is now "satisfied that *S. affinis*, *incurvifolia*, *hirta* and *palmata* are all mere varieties, or indeed, barely deserving the name of varieties."

Read, "A Synoptical View of the British Fruticose Rubi, arranged in groups, with explanatory remarks, (Part 3)," by Edwin Lees, Esq., F.L.S. The paper was accompanied by drawings and specimens.—
G. E. D.

THE PHYTOLOGIST.

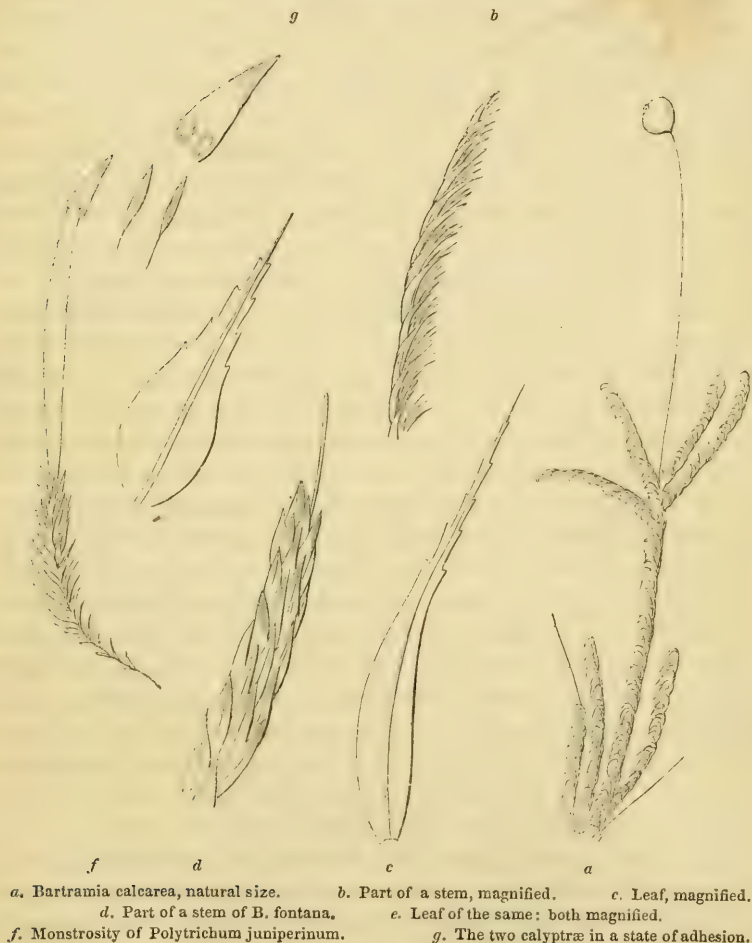
No. XXXIX.

AUGUST, MDCCCXLIV.

PRICE 1s.

ART. CCXXVII. — *Notes on British Mosses.*

By THOMAS EDMONSTON, Jun. Esq.



a. *Bartramia calcarea*, natural size.

b. Part of a stem, magnified.

c. Leaf, magnified.

d. Part of a stem of *B. fontana*.

e. Leaf of the same: both magnified.

f. Monstrosity of *Polytrichum juniperinum*.

g. The two calyptræ in a state of adhesion.

Bartramia calcarea, Bruch & Schimper.

For two or three years past additions have been made to our Muscology, with a rapidity truly surprizing, when we consider how tho-

roughly our mosses were believed to have been explored by the many eminent cultivators of that branch of Botany, in this country. That several of these so called *new* species will turn out merely varieties of well known plants, there can, I fear, be little doubt; but that a very considerable proportion are really and *bona fide* good species, I am equally convinced.

Those two eminent botanists, Drs. Hooker and Taylor, the authors of the well known 'Muscologia Britannica,' a work which is deservedly held in high repute, differed so widely, and in many cases so judiciously, from the great majority of continental botanists, especially Bridel and Schwægrichen, regarding the limits of species and the value to be attached to distinctive marks, that for the most part British muscologists were content to take the species as they found them in the 'Muscologia,' without at all referring to continental works, in which, apparently, so many spurious species existed. Lately, however, the splendid 'Bryologia Europæa' of two German botanists — Bruch and Schimper, has been much consulted by our muscologists, and I fear we are likely to go just as far into the opposite extreme of *hair-splitting*. Undoubtedly, many of the plants described as distinct in the Bryologia, are mere forms of others, and occasionally the variations are so slight, that we cannot help regretting that such trivial characters are employed in so valuable a work. Yet still, in my opinion, and in that of many far better botanists, the authors of the work in question are entitled to great praise for their acuteness and discrimination in distinguishing many species undoubtedly distinct, but which had been hitherto confounded. The species above figured is one of these. It was, I believe, first clearly described as British by Mr. Spruce, in a very interesting paper on the mosses of Teesdale, in the 'Annals of Natural History,' xiii. 197. Having lately gathered most beautiful specimens of this splendid moss, on the banks of the Findhorn, near Darnaway, about three miles from Forres, Morayshire, where it grows plentifully associated with *Bryum ventricosum*, *Marchantia hemisphærica*, and *Asplenium viride*, — I have been led to examine it more particularly, and the result is, that I think it a very distinct plant, and constant to its characters, which are abundantly sufficient to keep it separate from *Bartramia fontana*, with which it has hitherto been confounded. And I am induced to trouble the readers of 'The Phytologist' with a sketch and short description of it.

Bartramia calcarea, Bruch & Schimper. Stems four to six inches or more in height, densely cæspitose, copiously branched with inno-

vations, and bearing the setæ, and frequently the withered capsules, of one or two preceding years, remaining upon the lower part of the stem. Leaves all falcato-secund, lanceolato-acuminate, sharply toothed in their upper half; nerve strong, reaching to the summit of the leaf. Seta frequently, but not invariably, lateral from the innovations. Capsule slightly inclined, globose (narrower and more curved after the plant has been dried); lid conical.

The capsules on my specimens, though fully grown, were too young to afford a satisfactory analysis of the peristome; neither was I so fortunate as to find the male flowers. In both the peristome and the leaves of the perichætia of the male flowers, characters are said to be found. I found the latter in fine state on *B. fontana* (*true*), and can verify Mr. Spruce's observations, as to the inner leaves of the perigonia in that plant being "obtuse, with an abbreviated or obsolete nerve;" the nerve in fact is scarcely discernible. In *B. calcarea* the leaves are said to be "all acuminate and nerved throughout."

The most apparent points of difference between this plant and the true *B. fontana*, are to be found in the leaves being broader (ovato-acuminate) and erecto-patent, imbricated on all sides (not at all secund); the capsule in *B. calcarea* is also more decidedly globose, and scarcely so inclined; it is also less deeply furrowed, and the whole plant is larger. These characters, and a glance at the figures, will, I think, convince the most sceptical of the great difference between the two plants. This difference is fully greater than between *B. pomiformis* and *Halleriana* or *ithyphylla*; and if the characters are not deemed sufficient to allow the plant to rank as a species, I am at a loss to conceive how *Andræa nivalis* is to be distinguished from *A. Rothii*, or *Dicranum falcatum* from *D. Starkii*.

Is *Bartramia falcata* of "Hooker in Linn. Trans. ix. 317," (referred to in the 'Muscologia Britannica') the same as this? I have not the work at hand to refer to, but if it be the same, I suppose the name will have to be changed.

Polytrichum juniperinum.

I am induced to send you the accompanying sketch (fig. *f.* p. 1033) of a specimen of *Polytrichum juniperinum*, which I found a few days ago. It presents the curious appearance of two calyptræ being joined together, so as to have the external appearance of one; *internally* however, as is shown at *g*, the calyptra appears distinctly two-celled, each cell containing a theca; so that there is not the least adhesion be-

tween either the setæ, or the capsules inclosed in this double calyptra, and the appearance is evidently occasioned by the two calyptræ growing together at an early stage. The capsules in this specimen were quite young.

T. EDMONSTON, JUN.

Aberdeen, May, 1844.

[Mr. T. Sansom (Phytol. 93) has described a precisely similar state of *Polytrichum commune*; and at the same time mentions a specimen of *P. juniperinum* in the same state, collected by Mr. W. Gardiner.—*Ed.*]

ART. CCXXVIII. — *Sketch of a Botanical Ramble to Twll dû, June 19, 1844.* By JOSEPH SIDEBOTHAM, Esq.

DURING a short stay at Beaumaris in June, I made an excursion among the Caernarvonshire mountains, taking the route through Bangor, along the Capel Curig road, through the Penryn slate-quarries to Twll dû, thence crossing the mountains to Llanberis, and the following day making the ascent of Snowdon, returning by the lakes and through the Llanberis quarries.

Having been unsuccessful in one of the objects of my journey, viz., to procure *Lloydia serotina*, from its inaccessible situation, I determined on a second excursion. A friend from Bangor accompanied me. We took a conveyance as far as the Penryn quarries, having previously agreed with one of the workmen to accompany us, and to bring a rope. The morning was not one of the most promising for a botanical expedition, the mountains being completely hidden by a thick mist, while occasionally there fell a little rain. Nothing particular occurred during our walk along the road. *Allosorus crispus* was very plentiful on the walls, and we saw plenty of *Saxifraga stellaris* on the wet rocks.

Twll dû is situated to the right of the road, just at the commencement of Llyn Ogwen, a large lake which borders the pathway on the left hand. Here commenced our ascent, which lay over fragments of rock and heathy ground, abounding in *Lycopodium Selago* and *alpinum*. In a short time we reached Llyn Idwel, a lake of considerable extent, the shore of which was lined with fragments of *Isoetes lacustris*, and the bottom is in some parts covered with it, growing intermixed with *Lobelia Dortmanna*. *Subularia aquatica* also grows here in plenty; but we did not find any in flower, being a little too early in the season.

On the neighbouring rocks was abundance of *Andræa Rothii*, in fruit, with *A. alpina* in smaller quantity; also *Grimmia ovata*, *Anicetangium ciliatum*, and several species of *Trichostomum*: scattered here and there were *Carex dioica* and *Splachnum sphæricum*. We did not stay long in this place, as the rain began to descend rather heavily, but made the best of our way along the shore of the lake, and up the rugged side of the mountain to Twll dû.

On the occasion of my previous visit, I ascended the course of a mountain stream, and gathered the following mosses upon the rocks which bordered it. *Gymnostomum fasciculare*, *Weissia acuta*, *Glyphomitron Daviesii*, *Bryum crudum*, *B. julaceum*, *B. ventricosum* and *B. Zierii*, with many others of less note. The rocks on our way up the mountain side were covered with the beautiful *Silene acaulis*, *Saxifraga hypnoides*, *stellaris* and *oppositifolia*, in fruit, *Oxyria reniformis* and *Asplenium viride*. Twll dû is an immense chasm or cleft in the mountain, the sides of which are perpendicular. It appears to have been formed by the long-continued action of a stream, which runs from a small lake above, called Llyn y cwn. At my first visit, I penetrated this cleft till I reached an immense block of stone, which completely chokes the passage, rendering further progress next to impossible. As our present object was to gain the top as soon as possible, we turned to the left on reaching the chasm, and so ascended, keeping close to the wall of rocks.

On these rocks we gathered *Trollius europæus*, *Thalictrum alpinum*, *Rhodiola rosea*, *Arenaria verna*, *Gnaphalium dioicum*, and a *Saxifrage* which I suppose to be *S. cæspitosa*; *Hypnum Crista-castensis* and *Neckera crispa* grew at the base, but we found no fruit. On reaching the summit, our friend the quarryman took off his load of rope, to reconnoitre the place. I had to act as guide, being the only one of the party who had visited the place before. We first went to the channel where the little stream leaps over the rocks into the profound abyss. From this place we could see plenty of the *Lloydia serotina* growing on the face of the precipice, above the large block of stone. There was one specimen bearing two flowers, a yard or two from the waterfall, almost within reach. I had seen the same specimen before, and wished much to gather it, but the attempt would have been very dangerous, from the friable nature of the rock. Fortunately I saw another, which, after a little climbing, I managed to obtain. We then returned to the rocks immediately above the precipice, where the quarryman fastened the rope round his body, and began the descent, having first given us strict injunctions not to let go our hold.

He returned however almost immediately, with the unwelcome news that the rope only reached a few feet over the brink of the precipice ; it should have been at least ten yards longer. This was mortifying : but *ne cede malis*, thought I ; so after a short consultation, we agreed to attempt a footing lower and nearer the precipice, and presently fixed on a small ledge of rock at the brink, where it was possible, by a little clearing from debris to place our feet. From this point we lowered our friend John, who soon reappeared with some specimens of the precious plant in his mouth, and a few others in his hat.

The mist had now cleared away from the mountains, and we went to Glyder Vawr to search for *Woodsia Ilvensis* ; in this we were unsuccessful, although possessing plans of the district, with which my friend Mr. Roberts of Bangor had favoured me, embracing even the actual rock upon which he and Mr. Borrer had gathered it in plenty. Nothing else occurred particularly worthy of note, but I may observe that there was plenty of *Juniperus nanus* coming into flower, and a little *Splachnum mnioides* about Llyn y cwn. JOSEPH SIDEBOTHAM.

Manchester July 10, 1844.

ART. CCXXIX. — *Further Remarks on Carices.* By S. GIBSON, Esq.

THE object of this note is to prove that my *Carex pseudo-paradoxa* does not really belong to *C. teretiuscula*, as has been advocated by Dr. Wood and other botanists.

Controversy is of great value in Botany as well as in the other sciences, as it has always a tendency to lead to further researches, and the facts which result from them often tend to the development of truth. Had my former remarks upon these plants been generally admitted, I should probably have remained satisfied ; but the objections and doubts that have been raised against it, have led me to a very detailed investigation of the plants in question ; and the result is that my former opinion on the subject is still unshaken.

But here I may observe in regard to the term, that it is a matter of no moment with me whether they be called species or varieties, since I know that it is not in the power of man to tell what a species is.

All that I shall here attempt to prove is that such characters as I have pointed out do really exist in the plants.

And before I make any attempt to do this, I will just say that my remarks will (unless otherwise expressed) be limited to those speci-

mens which were sent to Mr. Babington* by Dr. Wood, marked "Seaman's Moss-pits, Cheshire,"† and those referred to by our editor (Phytol. 811), as he tells us he received them from the Dr. I confine myself to these specimens, because Mr. Luxford's history of the plants in question is a very unsatisfactory one, inasmuch as it alludes to his having received the plants from persons who have not been very particular in sending the disputed plant when they have been asked for it.

Mr. King, of Lane-house, near Halifax, asked Mr. Sidebotham (one of the parties referred to) for my *C. pseudo-paradoxa*, and he sent him specimens under that name. Mr. King, on receiving them, finding them not to agree with the description I had given of it (Phytol. 778), came and desired me to show him my specimens; this I did with pleasure, and he, the moment I opened the paper, pronounced them very different from those he had received from Mr. Sidebotham. Another instance of this gentleman's negligence will be exemplified by the following quotation, which is from one of his letters to me, dated January 11, 1844: — "Mr. Babington wrote to me for ripe fruit of the *Carex*, and I sent him some of the *teretiuscula* by mistake."

I will now turn to our editor's note, (Phytol. 811); and the first thing I shall notice is the following passage. "We have now before us under the microscope, the fruit of the disputed plant, of *C. teretiuscula*, and of *C. paniculata*, all in a mature state." By this and what follows, I understand the reference to be to the perigynium only. Allowing then that there is a striking difference in the fruit (perigynium) of these two plants, I hope that I shall not be thought presumptuous if I just see how these differences have been pointed out by persons who have written on the subject, and attempted to describe them. Sir W. J. Hooker (British Flora, ed. 5), speaks of the fruit of these *two plants* as having their beaks bidentate, he says nothing of the one being more so than the other. He also says, on the authority of Dr. Boott, that the winged margins of the fruit of the *teretiuscula* are *SERRULATE*, and that those of the *paniculata* are *SERRATED*; and he speaks of them *both* as having a central, and sometimes winged line along their beaks, on the convex side of the perigynia. Our editor tells us (Phytol. 812) that the *paniculata* has a *FRINGED* membrane upon the

* *At my request*, that gentleman favoured me with the specimens now alluded to; and I now take this opportunity of thanking him for the kindness.

† If there be "no such thing as secresy" in the case, I now say with *candour*, that I should take it as one of the *greatest of favours* if some of the parties who are acquainted with the locality, would give in 'The Phytologist' such a direction as would enable a stranger in that neighbourhood to find the above mentioned place.

beak of its fruit, and on the other hand, that the *teretiuscula* has a SERRATED membrane. Mr. Luxford says (Phytol. 922), when speaking of the *teretiuscula*, that it has a SERRULATE wing. Smith describes them both as having SERRATED beaks. These two plants are spoken of indiscriminately as having their fruit *bifid* or *notched* at the beak. The two are also spoken of as having a dorsal wing upon the convex side of their perigynia. By this it will appear that the difference of the fruit of these plants is either very inconsiderable, or that the parties who have attempted to describe them have never examined them.

I have now given the ideas of some of our most eminent writers upon these plants, in nearly their own words, lest it should be said that I have misapplied their meaning. I shall now impartially give the results of my own observations on this subject; and by an exact examination of the plants themselves, will endeavour to find out which of the above accounts, so diametrically opposed to each other, are the most consonant to matter of fact.

But before I commence I must lay down this general principle, which I hope will not be denied, namely, that Nature is uniform in all her operations, and does not recede from the rule laid down by the Wise Disposer of all things, by making the same thing often two different methods. Therefore, if I were to find a central or winged line on the convex side of the fruit of these plants, or find them with SERRATED, CILIATED, or SERRULATED lateral margins in one instance, I should expect to find them so in all. And now I must say that if any person will take the trouble of examining the perigyniums of these plants, he will find there is neither a central wing nor central line on their convex side; but there is an opening on that side which extends downwards to the very bottom of the beak, and in some instances to the base of the perigynium itself. The curious nature of this opening may perhaps have given rise to the various opinions as to its having a wing or winged line. This opening may be seen by passing a knife in a longitudinal direction along the outer or convex side of the beak, which will be found to consist of two thin membranes, which overlap each other, and thus form what a mechanic would call a spliced joint. This is a description of a perigynium in its ordinary form; but in some we find one or both of these membranes that is not laid close down, and thus may have given rise to the supposed central wing; in others we find these membranes turned inwards, and in that state may have given rise to the supposed central line. When the beak is opened out and laid flat, it will be found that what was the inner or concave side is very thin in the middle, particularly so towards the point, and

this part being split by the least accident, causes it to be more or less notched or bifid. This character is common to *C. teretiuscula*, *paniculata*, *paradoxa*, and to my *pseudo-paradoxa*, but on examination it will be the least distinct in *paradoxa* and most distinct in my *pseudo-paradoxa*. *Carex paniculata* is spoken of as having the beak of its perigynium more deeply bifid; with a broader and deeper fringed margin. In this I find no difference between *paniculata* and its allies, as they are all equally variable in this respect. I have the perigyniums of *paniculata* with their margins as narrow and as indistinctly fringed as any I ever saw in *teretiuscula*; and I have often met with *paniculata* with the beaks of its perigyniums quite entire, that is to say, neither bifid nor notched. To speak of the beaks or lateral margins of these perigyniums being more or less white or green, would only be losing time, as any person who has paid the least attention to the subject will know how far we can depend on such a character, as all of them will (I think) be found green when in a young state, and more or less white with age.

Having now spoken at some length on the beaks of the perigyniums of these plants, I now come to notice their lower parts: and on examination I find these parts (in all the four forms) to be equally variable, that is, in being convex on one side, and flat or concave on the other, or in being more or less convex on both sides. I have seen *C. paniculata* with its perigyniums even concave on both sides; and at other times I have met with it having its perigyniums as much inflated and quite as gibbous on their inner faces as ever I saw those parts in *C. paradoxa*; and on the other hand, I have seen *paradoxa* with the inner faces of its perigyniums flat, and in some instances concave on that side. In short, I always consider the perigynium as the most variable part in all *Carices*, the shape depending much on their being more or less densely placed on the rachis. Thus, a spike or spikelet (of the same species) having four, six or eight rows, would have them of various shapes, and when placed very close one above the other, so as to press the beaks outwards, they will be found more convex upon their inner faces than when they are more distantly placed.

My reasons for not considering the perigynium of *Carices* as being part of their fruit, are as follows. First; because I often find them with pistils which remain abortive: secondly, with stamens only: thirdly, with both stamens and pistils: fourthly, proliferous, that is, with the peduncle of one perigynium passing through the beak of the next below, and thus rising one above the other for four or five heights; in this state they are sometimes abortive, and at other times produce per-

fect nuts : and, fifthly, I find them with the peduncle of a fertile spike passing through the beak of one or more of their perigyniums ; this character is common in the different forms of what is called *C. Goodenovii*. When in this state I find the perigyniums insensibly passing into what are called scales or glumes ; and on the other hand, I find the glumes insensibly passing into what are called the bracteas ; and again, I find these bracteas in the same insensible manner passing into what are called the leaves. Thus we have perigyniums, glumes, bracteas and leaves, so closely connected that it is impossible to tell where to strike the line of distinction.

I now turn to Mr. Luxford's note (Phytol. 918), and as I only study plants &c. in their natural habits, I do not know what Mr. L. means us to understand by his reference "to our domesticated animals and our cultivated plants and fruits." But I must say that I am somewhat surprised at Mr. Luxford's notion of a *natural group* of *Carices*, when I find that he has put *Carex vulpina* alongside of *C. paniculata* &c. : and I am also surprised to find him saying that "the inflorescence of *Carex vulpina* is tolerably constant," as I do not know of any *Carex* that is more inconstant in its mode of inflorescence. And so far as its natural affinities are concerned, I think that it would have been better placed with such species as *muricata*, *divulsa*, &c.

And as *I do not study figures*, I will pass over those of Mr. Wilson and the others which have been "copied from Leighton's 'Flora of Shropshire,'" by just saying that I have never seen the mature nut of a *Carex* that has any resemblance to Mr. Wilson's fig. *d* ; but on the contrary, I say that no figure could be made more correctly to represent the MATURE nut of *C. teretiuscula* than that of Mr. Leighton.

As one who studies plants, I would advise such persons as are in the habit of making figures that should represent such characters as the swollen base of the style of a *Carex*, while standing on the nut, just to make some mark whereby we may distinguish the style from the nut itself ; or perhaps we might mistake the whole of the nut for part of the style.

For an account of the discovery of *Carex paradoxa* in Yorkshire, Mr. Luxford refers us to a note by Mr. Spruce, (Phytol. 842). So far as regards the discovery of this plant, it is a matter of little or no importance, but what has been said on the subject would, *I think*, have been much better, if it had been correct. Mr. Spruce says, "it was first found by myself in Heslington fields, in April, 1841, and a few weeks after in Ascham bogs." Here I could inform Mr. Spruce when and by whom this plant had been found in Yorkshire long before the

time that he has mentioned ; but for the correctness of his statement, I will only refer the reader to Baines's ' Flora of Yorkshire,' for there he will find Ascham-bogs given as a station for the plant in question ; and as this book was published in the year 1840, it will serve to show that this plant must have been discovered previous to 1841.

Mr. Luxford tells us that the stem of *C. paniculata* has three acute angles, with the interstices flat ; while the angles of *teretiuscula* are obtuse, with projecting lines on the sides. He also tells us that the stems of the *paradoxa* resemble the latter. In this Mr. L. agrees with most of our writers on the British Carices ; and indeed we are told in 'English Botany,' that *C. teretiuscula* takes its name from the circumstance of its having a stem of a peculiar form. I shall not say here how far the form of the stems of Carices may be taken into account as characters whereby to distinguish them as species ; neither shall I say how far these forms are constant. But this I will say, that my *Carex pseudo-paradoxa* (*those specimens that were sent by Dr. Wood to Mr. Babington*) *has a stem that has three acute angles, with the interstices flat*, or, if I were to speak with exactness, I might say the interstices are concave. Mr. L. tells us that these characters indicate specific identity.

As regards the perigynia and nuts of the Carices in question, I might say, taking the rule and leaving out the exceptions, that the perigynia of *C. paniculata* and *paradoxa* are nearly the same, so far as the ribs are concerned, and their greater or less proportion of convexity is variable in both ; in my *pseudo-paradoxa* and the *teretiuscula* the ribs are the same, but the former has a perigynium that is much broader at the base.

If we take a series of the nuts (that is to say what belongs to one specimen) of *C. paniculata*, *paradoxa* and my *pseudo-paradoxa*, it will be found that their resemblance is so close that it is not possible to distinguish them with certainty ; and if, on the contrary, we take a series of the nuts of *C. teretiuscula*, we shall find their outline to be very different from the other three, the prevailing number will be found to resemble Mr. Leighton's figure of the nut of that species.

It must be understood that I here speak of the fruit of these Carices in a state of maturity : this I say with so much certainty, that I shall not have to retract the words by saying that "I am inclined to think" otherwise, as nothing is more easy than to know when the fruit of a *Carex* is mature.

As Mr. Luxford takes the ' London Catalogue of British Plants ' as some authority in this disputed point, I hope that he will allow me to

say, that the plant which I have called *Carex pseudo-paradoxa* is neither more nor less a species for being placed under *C. teretiuscula* as *var. b.* of that plant. I wonder that the compilers of that Catalogue did not do by these four *Carices* as they have done by some of our *Salices*, that is, to make *a, b, c* and *d* of them, and then tell us that their "proper typical form" is to be found in some foreign land !!

I am truly sorry to say that Mr. Luxford's note is of no value in settling the disputed point, *since he tells us that he does not know* whether the differences he has taken so much pains in pointing out, may not be attributed to the plants being examined in different states of maturity.

My *Carex pseudo-paradoxa*, differs from *C. teretiuscula* (WHEN MATURE) in its nut being narrowed from below the middle, and in the perigynium being broader and truncate at the base; it also differs from that plant in its stem having three *acute* angles, with their interstices *flat*. From *C. paniculata* it differs in its perigynium being differently ribbed and less distinctly bifid at the point, and in having narrower leaves. From *C. paradoxa* it will be found to differ in its perigynium being less distinctly ribbed on its inner side, and also in the form of its stem. And from all the other three it differs in its mode of inflorescence.*

SAML. GIBSON.

Hebden Bridge, June, 1844.

ART. CCXXX. — *Notice of Presl's 'Hymenophyllaceæ.'*†

IN all and everything relating to ferns, the name of Presl is a guarantee for excellence. In saying this, we by no means assert that he is infallible: we could with little trouble lay our finger on several important errors into which he has fallen; one of the most inexcusable of these is his version of the venation of *Ceterach*: but we do assert that there is throughout his works a constant exhibition of the most comprehensive knowledge, of the most admirable power of seizing characters, of the most acute judgment and capability of generalizing, and of the most perfect fairness in citing all the authorities with which he is acquainted.

* Thus far we have given Mr. Gibson's letter entire, but we hope to be excused for omitting his concluding paragraph, as not bearing on the subject in dispute.—*Ed.*

† *Hymenophyllaceæ*. Eine Botanische Abhandlung, von PROF. DR. KARL B. PRESL. Prag. [Pamplin, Frith Street, London].

The work by which Presl first attained his reputation was published at Prague in 1836, under the well known title of ‘Tentamen Pteridographiæ.’ He there divides the ferns into five orders: — Filicaceæ, Hymenophyllaceæ, Marattiaceæ, Osmundaceæ and Ophioglossaceæ; of these the Filicaceæ alone are analyzed, the Hymenophyllaceæ being announced as the subjects of a future memoir, while the remaining orders are left for other botanists to elaborate. “Should it please Almighty God the Hymenophyllaceæ shall be discussed in a separate memoir: but I purpose leaving the remaining orders to the skilful hands of other historians.” The memoir thus promised in 1836, was completed in 1842; and we consider it so excellent, that we trust no apology is necessary for giving *verbatim* a large portion of its contents.

Comparing this treatise with that upon the Filicaceæ, it is decidedly superior. In the earlier work there are combinations, both as sections, genera and subgenera, which will not bear the test of critical examination: but in the present work the groups are described with the utmost care, and perhaps are indebted for some portion of their greater value to the fact that they depend almost solely on the fructification. Presl was the first to systematize the venation of ferns, and carried away by the beauty, the novelty, and indeed by the intrinsic utility of this guide, he perhaps, in some instances, gave it too great an importance, and allowed it to take precedence of the characters of fructification. In the Hymenophyllaceæ he finds the venation more uniform, and is therefore driven back on the fructification; and the result of the application of his great analytical powers to so safe and certain a guide, is the institution of genera more definite and tangible than any previously promulged in any section of the filicoid plants.

We have already seen that the author considers the Hymenophyllaceæ a group as distinct from the other annulate ferns as are the Osmundaceæ. To this opinion we are scarcely prepared to subscribe. The capsule in these plants possesses a most distinct articulated ring, as in the true Polypodies: yet generally differs in being attached to the receptacle by a portion of its diameter, the ring not unfrequently passing transversely round the capsule, like a belt; whereas, in the Filicaceæ of Presl, it is almost invariably stipitate, its stipes generally appearing continuous with the ring. The receptacle in the Hymenophyllaceæ is free; while in the Filicaceæ it is almost invariably imbedded. And here it may be as well to observe, that every part of the vein in ferns seems liable to become a receptacle by the presence of capsules. In the Filicaceæ we find a distinct and apparently independent involucre; it does not appear to us to be the cuticle of the

frond separated from the parenchyma by the pressure of the growing capsules, although the great similarity of its structure to that of the epidermis has been so often pointed out; but rather a separate and distinct part, as much so as the veins, the capsules or the scales: in the Hymenophyllaceæ the bivalved involucre is quite another affair; it is perfectly continuous with the edge of the frond, and is very evidently formed of its two cuticles. The office of the involucre in the Polypodies has not, we believe, been demonstrated with precision, and it is quite possible that the involucre in the Hymenophyllaceæ may perform exactly similar functions; but the parts are not identical, and the involucre of Hymenophyllum appears to us rather the analogue of the inflected margins of an *Adiantum*, or an *Allosorus*, than of the peltate involucre of a *Polystichum*. The texture of the frond in the Filicaceæ is generally somewhat coriaceous or slightly fleshy, and the transparent veins, when viewed from above, appear to be sunk in its substance: in the Hymenophyllaceæ the reverse is the case, the frond being very thin and membranous, and the veins stout, winged, prominent and opaque. Thus the structure of these interesting plants seems to lead us to the conclusion that they form a part of the Filicaceæ, or true ferns, while the points in which they differ from the rest are so numerous, that we are compelled to consider them the most distinct and detached division of that extensive and diversified order.

We are fully aware that exceptions occur to all these characters: for instance, Robert Brown's *Loxsonia* seems to have something of a fleshy or leathery frond, with free, setiform involucres and stipitate capsules; and other instances of departure from typical character might without difficulty be pointed out.

The Hymenophyllaceæ are divided by Presl into nineteen genera, composing two tribes, *Trichomanoideæ* and *Hymenophylloideæ*; the first of these is again divided into two sections, *Trichomanææ* and *Didymoglosseæ*. The genera of *Trichomanææ* are these: *Feea* and *Hymenostachys* of Bory, *Didymoglossum* of Desvaux, and *Lecanium*, *Cardiomanes*, *Trichomanes* (restricted), *Ragatelus*, *Cephalomanes*, *Neurophyllum*, *Microgonium*, *Abrodictyum*, *Meringium* and *Hemiphlebiium* of Presl. The genera of *Hymenophylloideæ* are *Leptocionium*, *Myrmecostylum*, *Ptycophyllum*, *Hymenophyllum* (restricted), *Sphærocionium* and *Hymenoglossum* of Presl.

The characters given to the *Trichomanoideæ* are these.*

* We prefer giving the quotations untranslated, believing that all botanists who may honour us with a perusal of these pages, will prefer the original to any version which it is in our power to make.

"Sorus in substantia ipsa frondis seu intra ejus laminas immersus, aut in apice venæ venulæve sessilis. Indusium tubulosum, tubo integro, limbo integro aut bipartito. Receptaculum filiforme, exsertum, inferne capsulis spiraliter obsitum, cæterum nudum punctis excavatis spiraliter ambientibus ornatum."—p. 10.

It will be observed that the main distinction between the two tribes is found in the tubular involucre of the *Trichomanoideæ*, the tube being invariably entire, and its limb either entire or bipartite, the former character distinguishing the *Trichomaneæ*, the latter the *Didymoglossæ*. In this definition we feel scarcely inclined fully to concur, since in the first group we almost invariably find the limb of the involucre bipartite, or at least emarginate on each side, at its junction with the wing or margo.

Genus, *FEEA*, *Bory*.

"Fronde dissimiles. Steriles: Venæ internæ, pinnatim alternæ, simplices aut sæpius furcatæ. Fertiles: Venæ creberrimæ, brevissimæ, pedicelliformes, soriferæ. Sorus in vena pedicelliformi apicalis. Indusium clavato-infundibuliforme, ore crenulato. Receptaculum exsertum, tenuiter clavatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma adscendenti-repens, polyrhizum. Fronde sparsæ, valde approximata ita ut fasciculatæ videantur, transparentes, stipitata, steriles a fertilibus diffformes. Frons sterilis profunde pinnatifida aut pinnata, laciniis linearibus obtusis obscure repando-crenulatis, pinnis adnatis ovato-oblongis obtusis crenulatis, stipite basi tereti, in una facie supra canaliculato in altera convexo, rachi hinc plana illinc convexa, costis tenuibus vix prominulis, venis internis pinnatim alternis angulo acuto patentibus simplicibus aut sæpius furcatis venulisque ante marginem frondis desinentibus, parenchymate e cellulis hexagono-subrotundis constructo. Frons fertilis longius stipitata, ad meram rachidem reducta, venis brevissimis creberrimis pedicelliformibus soriferis. Indusium clavato-infundibuliforme, sæpe incurvum, ore crenulato. Receptaculum indusio triplo longius, filiformi-subclavatum, basi capsuliferum, reliqua longitudine punctis impressis spiraliter ambientibus minutis, inde sub microscopio tantum visibilibus, ornatum."—p. 10.

1. *F. polypodina*, *Bory*, *Dict. Class.* t. 68. *Trich. spicatum*, *Hedw. Sw.* *T. spicisorum*, *Desv.* *T. elegans*, *Rudge, partim. Hook. Exot. Fl.* t. 52.

2. *F. nana*, *Bory*, *Dict. Class.* 1, t. 69, f. 1. *Tri. botryoides*, *Rich. in Kaulf. Herb.*

Genus, *HYMENOSTACHYS*, *Bory*.

"Fronde dissimiles. Steriles: Venæ internæ, pinnatim alternæ, simplices aut sæpius furcatæ. Fertiles: Venæ creberrimæ, parallelæ, simplices, apice soriferæ. Sorus intramarginalis, immersus. Indusium campanulatum, ore truncato integro. Receptaculum exsertum, filiforme, basi capsuliferum. Capsulæ sessiles. Stirpes tropicæ, americanæ, speciosæ. Rhizoma adscendenti-repens, polyrhizum. Fronde sparsæ quidem sed valde approximata ita ut fere fasciculatæ videantur, stipitata, hygroscopica, transparentes, steriles a fertilibus diffformes. Frons sterilis pinnata aut pinnatifida, pinnis adnatis laciniisque oblongis obtusis inæqualiter angulato-dentatis repandisve; costæ tenues, vix prominulæ; venæ internæ, tenues, pinnatim alternæ, angulo acuto patentes, simplices aut sæpius furcatæ, venulisque ante marginem desinentes. Frons

fertilis linearis, angusta, venis creberrimis parallelis simplicibus apice soriferis. Stipes in fronde fertili longior. Rachis Parenchyma Sori immersi, intramarginales. Indusium campanulatum. Receptaculum indusio triplo longius.”—p. 10.

1. *H. elegans*. Trich. *elegans*, *Rudge, partim*, exclusa nempe fronde fructifera dextra et figura 3 et 4.

2. *H. osmundioides*. *H. diversifrons*, *Bory*. *T. osmundioides*, *Poir*.

Genus, *LECANIUM*, *Presl*.

“Costa nulla. Venæ flabellatæ, creberrimæ, subparallelæ, pluries furcatæ, crassiores apice soriferæ. Venulæ tenuissimæ in superiori parte frondis libere exorientes et squamas duas oppositas supramarginales pateræformes patentes gerentes. Sorus intramarginalis, immersus. Indusium lineari-cylindricum, elongatum, limbo hypocra-terimorpho patente crenulato. Capsulæ receptaculo filiformi indusium longe excedenti undique affixæ, sessiles, angulato-lenticulares, valde excentrice (pone marginem) affixæ. Rhizoma repens, ramosum, filiforme, ramisque radiculis copiosissimis fuscis piliformibus vestitum. Frondes sparsæ, distantes, hygrometricæ, flabellatæ, irregulariter lobatæ, in pagina utraque conformes, glabræ, transparentes. Stipes brevissimus (unitrilinealis), compressus, paleis fuscis copiosissimis piliformibus brevibus vestitus. Rachis et costa nullæ. Venæ flabellatæ, creberrimæ, pluries furcatæ, venulæ aliæ soriferæ aliæ steriles furcatim in marginem excurrentes. Venulæ aliæ internæ, in superiori parte frondis exorientes, plerumque binæ, tenuissimæ, liberæ, gerentes in margine frondis organum peculiare constitutum e squamis duabus oppositis sessilibus liberis pateræformibus concavis patentibus tenuiter membranaceis. Parenchyma e cellulis hexagonoideis, in limbo indusii e cellulis subquadratis constructum. Indusium elongato-cylindricum v. lineare, immersum, limbo libero. Receptaculum indusio plus quam triplo longius, filiforme, rarissime conservatum, sed usque ad orem indusii abruptum. Capsulæ totam fere longitudinem receptaculi, saltem longe supra os indusii capsuliferum. Sporæ tetraedricæ. Species unica, antillana.”—p. 11.

1. *L. membranaceum*. Trich. *membranaceum*, *Lin*.

Genus, *CARDIOMANES*, *Presl*.

“Costa nulla. Venæ pedato-flabellatæ, crebræ, furcatæ, steriles ante marginem frondis apice obtuso desinentes. Sorus intramarginalis, immersus. Indusium campanulatum, ore integrum. Capsulæ lenticulares, receptaculo clavato obtuso demum exserto undique affixæ. Species unica Novam Zeelandiam inhabitans, elegantissima. Rhizoma late repens, ramosum, polyrhizum, radicibus flexuosis radiculis copiosissimis capilliformibus fuscis vestitis simplicibus ramosisve. Frondes sparsæ, distantes, glaberrimæ, vix aut non hygrometricæ, firmiores et minus transparentes quam omnes reliquæ Hymenophyllacæ, longe stipitatæ, reniformi-subrotundæ, integerrimæ, in pagina utraque conformes. Stipes usque semipedalis, inferne teres, medio et superne anceps, apice frondis lamina decurrente marginatus, glaberrimus. Costa media nulla. Venæ ex apice stipitis pedato-flabellatim exeuntes, pluries furcatæ, angulo acutissimo divisæ, venulis subinde omnibus soriferis, sterilibus ante marginem frondis apice obtuso desinentibus. Sorus intramarginalis, immersus. Indusium campanulatum, ore integro. Receptaculum indusio duplo longius, exsertum, clavatum, obtusum, rectum, rigidum, undique usque ad apicem capsuliferum, capsulis delapsis punctis impressis spiraliter ambientibus notatum. Capsulæ lenticulares, sessiles.”—p. 12.

1. *C. reniforme*. Trich. *reniforme*, *Forst*.

Genus, TRICHOMANES.

“Venæ pinnatæ, alternæ, simplices ramosæve, steriles apice acuto libero desinentes. Sorus intramarginalis immersus aut supramarginalis exsertus. Indusium infundibuliformi-cylindraceum, limbo integro vel crenulato. Receptaculum filiforme, elongatum, indusium excedens, inferne capsuliferum. Capsulæ lenticulares, sessiles. Rhizoma repens, paleaceo-pilosum, sæpe (in *T. crispo*, *T. plumoso* &c.) obliquum crassum simplex angulatum, sæpissime filiforme teres ramosum elongatum. Radices filiformes, simplices aut ramosæ, radiculis piliformibus. Stipes varie longus, in plurimis teres, in *T. pennato*, *T. Sellowiano* et aliis in una pagina canaliculatus in altera convexus, in *T. plumoso* et *T. Henkæano* (an exsiccatione?) acute triangulus. Frons hygroscopica, tenera, transparens, simplex aut varie divisa, nempe lobata, pinnatifida, pinnata usque supradecomposita, paginis conformibus. Venæ vix prominulæ, e costa pinnatim exorientes, alternæ, steriles venulisque ante marginem frondis libere desinentes, in paragrapho prima crebræ l. creberrimæ fere parallelæ uni—pluries furcatæ, venulis parum divergentibus, in paragrapho secunda et tertia distantes multo parciores pinnatim divisæ, venulis divergentibus. Cellulæ parenchymatis hexagonoidæ, latitudine duplo triplove longiores, minutæ et minutissimæ. Sorus aut intramarginalis seu frondi immersus, aut supramarginalis seu fronde oblitterata apice venæ venulæve subdenudatæ insidens. Indusium in *Achomane* infundibuliforme ore integro simplici, in *Eutrichomane* et *Pachychæto* infundibuliformi-cylindraceum oris crenulati repandive margine patentissimo subreflexo, unde limbus hypocraterimorphus quodammodo provenit. Receptaculum indusio duplo triplo quadruplove longius, sæpissime setaceum flexuosum, rarius subclavatum, basi intra indusium capsuliferum, in parte superiori nuda punctis oblongis impressis spiraliter ambientibus notatum.”—p. 13.

The author then recapitulates the characters of the genus *Trichomanes*, as they are given by Linneus, Swartz, Bernhardt, Willdenow, Robert Brown, Kaulfuss, Sprengel and Endlicher, showing how completely they contradict each other, and how inadequate they are to the correct definition of a genus. He divides the restricted genus *Trichomanes* into three named sections, as under.

* ACHOMANES.

1. *T. pellucidum*, Kunze.
2. *T. Kaulfussii*, Hook. *T. lucens*, Hook. *olim.* *T. astylum*, Kaulf. in *Sieb. Fl. Mixt.* n. 340.
3. *T. fastigiatum*, Sieb. *Syn. Fil.* n. 144.
4. *T. heterophyllum*, Willd.
5. *T. cristatum*, Kaulf.
6. *T. Martiusii*, Presl. “*T. fronde lineari-lanceolata elongata utrinque angustata stipiteque pilis patentibus hirsuta profunde pinnatifida, laciniis horizontalibus angulo acuto interstinctis oblongis obtusis integerrimis contiguis, inferioribus decrescentibus, summis confluentibus, venis parallelis, receptaculis setaceis longissimis, frondibus novellis (nondum evolutis) hirsutissimis, rhizomate crasso lignoso polyrhizo adscendente. T. pilosum*, Mart. *Crypt. Bras. p.* 104, t. 68, fig. dextra, nec Raddi.

“Habitat in Brasiliæ provincia Rio Negro in montibus Arara-Coara et Cupati fluvio Japurà imminentibus, ubi Januario fructificans collegit celeb. Martius”—p. 36.

7. *T. plumula*, *Presl.* “*T. fronde oblongo-lanceolata elongata apice angustata stipiteque pilis adpressis articulatis simplicibusque hirsuta pinnata aut profundissime pinnatifida apice pinnatifida, pinnis oblongo-linearibus obtusis integerrimis contiguis angulo acutissimo interstinctis horizontalibus, inferioribus deorsum versis, infimis 2—3 utrinque subito decreascentibus, venis parallelis, receptaculis setaceis longissimis scabris, rhizomate crasso lignoso polyrhizo horizontali hirsutissimo. T. pilosum, Mart. Crypt. Bras. p. 104, t. 68, figura sinistra, nec Raddi.*

“Habitat in Brasilia cum præcedente.”—p. 36.

8. *T. pilosum*, *Raddi.*

9. *T. crispum*, *Lin.*

10. *T. plumosum*, *Kunze.*

11. *T. Haenkei*, *Presl.* “*T. fronde oblongo-lanceolata elongata acuta pubescente pinnata basi obtusa, pinnis adnatis angulo rotundato interstinctis oppositis alternisque oblongis obtusissimis crenulatis parallelis contiguis apice fructiferis, infimis æquilongis distantibus deflexis, reliquis horizontalibus, venis di-trichotomis, fructiferis simplicibus, receptaculis longissimis, stipite triquetro rachique hinc convexa illinc canaliculata pilis adpressis hirsuto. T. crispum, Presl, Reliq. Haenk. 1, p. 69.*

“Habitat in montanis huanoccensibus Peruviae, ubi legit beatus Haenke.”—p. 36.

12. *T. Sellowianum*, *Presl.* “*T. fronde lineari-lanceolata elongata acuta profunde pinnatifida basi obtusa, laciniis oblongis obtusis inæqualiter denticulatis ciliatis undulatis sinu rotundato minuto interceptis alternis contiguis horizontalibus, infimis paululum minoribus deflexis, venis di-trichotomis, in una facie costaque pubescentibus, receptaculis longissimis, stipite hinc convexo illinc canaliculato rachique convexa pilis adpressis hirsuto. Trichomanes, Herb. Reg. Berol. Bras. n. 197.*

“Habitat in Brasilia, ubi legit Sellow.”—p. 37.

13. *T. asplenioides*, *Presl.* “*T. fronde lineari-lanceolata elongata glabra pinnata, pinnis alternis oppositisque sessilibus oblongis obtusis crenulatis inæquilateris inferne angustioribus acutis superne latioribus truncatis auriculatis, fructiferis irregulariter fissis aut laceris, venis creberrimis furcatis venulisque crassiusculis, rachi inferne hinc canaliculata hinc tereti, stipite tereti basi hirsuto, rhizomate brevi oblique repente. — Cuming, Pl. Exs. Philipp. n. 184.*

“Habitat in insulis Philippinis, ubi legit clar. Cuming.”—p. 37.

14. *T. dimidiatum*, *Presl.* “*T. fronde lineari longe angustato-acuminata pinnata, pinnis petiolulatis oblongis obtusis acuminatisve pinnatifidis basi inferne dimidiatis integerrimisque, basi superne truncatis, laciniis subbilobis lobisque bidentatis obtusis, infima majori auriculæformi, rachi hinc canaliculata illinc convexa stipiteque brevi villosa-paleacea, soris exsertis subpedicellatis, indusii limbo erecto. Cuming, Pl. Exs. Philipp. n. 129.*

“Habitat in insulis Philippinis præsertim in insula Luzon, ubi legit clar. Cuming.”—p. 38.

15. *T. javanicum*, *Blume.* *T. rigidum*, *Wall. Cat. n. 161.*

** EUTRICHOMANES.

16. *T. Bojeri*, *Hook. et Grev.* *T. undulatum*, *Wall.*

17. *T. digitatum*, *Sw.* *T. lanceum*, *Bory.*

18. *T. saxifragoides*, *Presl.* “*T. fronde glaberrima orbiculato-flabellata digitato-quinquefida basi acuta, laciniis lobatis dentatisve, lobis dentibusque obtusis, soro sub-*

solitario, indusii limbo patente subrepando, stipite laminam superante rhizomateque filiformi. *Cuming, Pl. Exs. Philipp. n. 256.*

“Habitat in insulis Philippinis, præcipue in insula Luzon, ubi legit clar. Cuming.”—p. 39.

19. *T. palmatum, Presl.* “*T. fronde oblonga subramosa glaberrima pinnata, pinnis petiolulatis remotis, infimis una- duabus digitato-multifidis basi cuneatis, laciniis linearibus obtusis, mediis (si adsunt) duabus oppositis trifidis, laciniis cuneato-linearibus obtusis suberenatis, superioribus fructiferis bifidis simplicibusque laciniisque cuneato-linearibus, soris immersis, indusii infundibuliformis limbo patente integro.*—*Cuming, Pl. Exs. Philipp. n. 209.*

“Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming.”—p. 39.

20. *T. Hookeri, Presl.* *T. muscoides, Hook. et Grev. Ic. Fil. t. 179.*

21. *T. erosum, Willd.*

22. *T. parvulum, Poir.* *T. sibthorpioides, Bory.*

23. *T. Thouarsianum, Presl.* “*T. fronde ovata obtusa glaberrima profunde pinnatifida basi acuta, laciniis utrinque duabus oppositis terminalique cuneatis bifidis, lobis linearibus integris dentatisve dentibusque emarginatis, indusii limbo patente integro, stipite lamina brevior rhizomateque filiformi.*

“Habitat in insula Borbonia, ubi legit Du Petit Thouars.”—p. 40.

24. *T. Poeppigii, Presl.* “*T. fronde lineari-lanceolata obtusa sessili pinnatifida pilis apice stellato-ramosis (umbraculiformibus) ciliata apice angustata basi acuta, laciniis oblongis obtusis subrepandis superne obsolete unidentatis, venis pinnatis, lacinarum inferiorum superiorumque simplicibus, indusii limbo patente integro, rhizomate filiformi piloso. T. sinuosum, Poeppig, Fil. Amer. Exs. Kunze, Fil. Poepp. in Schlecht. Linnæa, IX. p. 103.*

“Habitat in Peruvia, ubi legit clar. Poeppig.”—p. 41.

25. *T. sinuosum, Rich.* *T. incisum, Kaulf.*

26. *T. cognatum, Presl.* “*T. fronde oblongo-lanceolata obtusa glabra pilisve bifidis ciliata pinnatifida basi in stipitem angustato-decurrente, laciniis ovato-oblongis obtusis obtuseque dentatis sinu obtuso interstinctis, venis simpliciter ramosis, soris immersis, indusii infundibuliformis limbo truncate, stipite inferne filiformi supra basim articulato, rhizomate angulato paleaceo-piloso.*

“Habitat in Serra d'Estrella Brasilæ, ubi legit Beyrich.”—p. 41.

27. *T. lucens, Sw.*

28. *T. alatum, Sw.*

29. *T. Bancroftii, Hook. et Grev.* *T. coriaceum, Kunze.* *T. pinnatifidum, Willd. Herb. n. 20, 209.*

30. *T. Ankersii, Parker.*

31. *T. intramarginale, Hook. et Grev.*

32. *T. luzonicum, Presl.* “*T. fronde oblongo-lanceolata obtusa glaberrima profundissime bipinnatifida, laciniis primariis lanceolatis obtusis, secundariis linearibus integerrimis obtusis emarginatisve, stipite brevi apice alato, soris exsertis, indusii limbo patente crenulato, receptaculo recto.* *Cuming, Pl. Exs. Philipp. n. 98.*

“Habitat in insula Luzon, ubi legit clar. Cuming.”—p. 42.

33. *T. acutum, Presl.* “*T. fronde oblongo-lanceolata obtusa glaberrima profundissime bipinnatifida basi pinnata, laciniis primariis pinnisque oblongo-lanceolatis acuminatis, secundariis oblongis bi- trilobis, lobis linearibus acutis mucronulatis integer-*

rimis, soris exsertis, indusii limbo patente integro, receptaculo recto. *Cuming, Pl. Exs. Philip. n. 219.*

"Habitat in insulis Philippinis, præsertim in insula Luzon, ubi legit clar. Cuming."—p. 42.

34. *T. venosum, Brown.*

35. *T. Belangeri, Bory.*

36. *T. melanotrichum, Schlecht.*

37. *T. brachypus, Kunze.* *T. radicans, Hook. et Grev. Ic. Fil. t. 218.*

38. *T. radicans, Sw.*

39. *T. pyxidiferum, Lin.*

40. *T. ambiguum, Sieb. Syn. Fil. n. 143.*

41. *T. braziliense, Desv.*

42. *T. Bauerianum, Endl.*

43. *T. trichoideum, Sw.*

44. *T. tenerum, Sp.*

45. *T. exsectum, Kunze.*

46. *T. angustatum, Carmich.*

47. *T. Mandioccanum, Raddi.*

48. *T. scandens, Linn.* *T. radicans, Kunze, Syn. Fil. Poepp.* *Hymenophyllum radicans, Poeppig. Fil. Exs.*

49. *T. umbrosum, Wall.*

50. *T. strictum, Menz.*

51. *T. tamarisciforme, Jacq.*

52. *T. Achilleifolium, Willd.*

53. *T. longisetum, Bory.*

54. *T. Millefolium, Presl.* "T. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis pinnulisque primariis petiolulatis oblongo-lanceolatis obtusis, secundariis profundissime pinnatifidis l. pinnatis, laciniis anguste linearibus obtusis integris bifidisque, soris exsertis pedicellatis, indusii cylindræci limbo patente brevissimo, receptaculo setaceo brevi, stipite rachibusque tereti utrinque alato, rhizomate lignoso. *Cuming, Pl. Exs. Philip. n. 162.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. Cuming."—p. 43.

55. *T. Apiifolium, Presl.* "T. fronde glaberrima oblongo-lanceolata acuta tripinnata, pinnis lineari-oblongis pinnulisque anguste oblongo-lanceolatis petiolulatis acutis, secundariis anguste linearibus obtusis, infimis subbifidis, soris exsertis pedicellatis, indusii turbinati ore truncato, receptaculo setaceo indusio duplo longiore, stipite tereti rachibusque villosis, primaria apice secundariis tertiariisque alatis, rhizomate crasso lignoso obliquo frondes aggregatos gerente. *Cuming, Pl. Exs. Philip. n. 137 et n. 190.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. Cuming."—p. 44.

56. *T. bifidum, Vent.*

57. *T. eminens, Presl.* "T. fronde oblongo-lanceolata acutissima tri-quadripinnata, pinnis glaberrimis lineari-lanceolatis acuminatis pinnulisque primariis lanceolatis obtusis petiolulatis, secundariis anguste linearibus obtusis, infimis superioribus subbifidis, rachibus inferne teretibus paleaceo-villosis, superne glabris alatis, soris exsertis pedicellatis, indusii infundibuliformis limbo erecto tubum subæquante, receptaculo setaceo, stipite tereti paleaceo-hirsuto. *Cuming, Pl. Exs. Philip. n. 207.*

"Habitat in insulis Philippinis verosimiliter in insula Luzon, ubi legit clar. Cumming."—p. 44.

58. *T. fœniculaceum*, *Bory*.

59. *T. Meifolium*, *Bory*.

60. *T. intermedium*, *Kaulf*.

*** PACHYCHÆTUM.

61. *T. Luschnatianum*, *Presl*. "*T. fronde sessili oblongo-lanceolata acuta pinnata basi obtusa, pinnis subsessilibus lanceolatis acuminatis profunde pinnatifidis, lacinii inferioribus ovatis obtusis inferne lobatis superne dentatis, lobis dentatis, dentibus obtusis, soris immersis, indusii infundibuliformis limbo erecto, receptaculo crassiusculo scabro, rachi marginata, rhizomate tereti scandente.*

"Habitat in Brasilia ad Rio de Janeiro, ubi legit Luschnat."—p. 45.

62. *T. rigidum*, *Sw*.

63. *T. firmulum*, *Presl*. "*T. fronde oblongo-lanceolata acuminata glaberrima pinnata basi obtusa, pinnis subpetiolulatis acutis profunde pinnatifidis, lacinii linearicuneatis tri- bifidis indivisisque lobisque acutiusculis, venis pinnatim ramosis, soris lateralibus, indusii infundibuliformis limbo erecto integro, receptaculo crassiusculo scabro, stipite rachique primaria tereti. T. rigidum, Beyrich, herb.*

"Habitat in Serra d'Estrella Brasiliæ, ubi legit Beyrich."—p. 46.

64. *T. pyramidale*, *Wall*.

65. *T. speciosum*, *Willd*.

66. *T. brevisetum*, *Spr*.

Genus, RAGATELUS, *Presl*.

"Venæ prominulæ, pinnatæ, simplices, apice libero desinentes. Sorus immersus. Indusium infundibuliformi-campanulatum, limbo patente subhypocraterimorpho repando. Receptaculum indusio duplo triplove longius, setaceum, basi turbinato-incrassatum transverse striatum, apice ovoideo-incrassatum bifidum, lacinii inæqualibus obtusis oppositis setulam pallidam æquilongam interjectam foventibus. Capsulæ lenticulares, sessiles, basi incrassatæ receptaculi affixæ. Rhizoma ignotum, verosimiliter tamen obliquum repens. Frondes in apice rhizomatis aggregatæ, a beato Romano Adolpho Hedwig gregariæ dictæ, qui terminus tamen frondes fasciculatas in Hymenophyllaceis inusitatas vix designat. Stipes uni- bipollicaris, pilis patentibus hirsutus. Frondis limbus duos usque semitertium pollicem longus, basi pollicem plus minus latus, ovato-triangularis aut ovatus aut oblongus aut lineari-lanceolatus, acutus aut obtusus, pinnatus apicem versus pinnatifidus. Pinnæ ovato-oblongæ, obtusæ, pinnatifidæ, sessiles aut adnatæ, oppositæ, suboppositæ alternæque, approximatae, inferiores plerumque horizontales; lacinia frondis superiores pinnis conformes sed in rachidæ decurrentes et versus apicem frondis confluentes, lacinia pinnarum lineares aut cuneatæ sinu rotundato interstinctæ simplices aut bilobæ lobisque linearibus obtusæ pilis satis longis flexuosis articulatis e tuberculo emergentibus simplicibus aut apice trifidis ciliatæ. Parenchyma transparens, e cellulis subrotundis constructum. Rachis inferne nuda et verosimiliter teres, superne prominula. Costa flexuosa, fusca. Venæ pinnatim exorientes, simplices, fuscae, apice libero ante marginem frondis desinentes, sæpe pilis supra descriptis, brevioribus tamen, adpersæ. Sori in parte frondis superiori obvenientes, immersi, mediocres. Indusium pilis supra descriptis ciliatum. Receptaculum fuscum, in parte setacea læve et flexuosum."—16.

1. *R. crinitus*. *Trichomanes crinitum*, *Sw. Hedwig*.

Genus, CEPHALOMANES, Presl.

“Venæ pinnatim exorientes, creberrimæ, prominulæ, uni- bifurcatæ, venulisque sterilibus apice obtuso liberæ. Sorus in dentibus frondis oblitteratis terminalis, pedicellatus. Indusium cylindraceum, limbo patente integro. Receptaculum indusio dimidio duplo longius, rectum, rigidulum, cylindricum, apice in globum incrassatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma oblique repens, teretiusculum, intense fuscum, apice paleaceo-hirsutum, inferne glabrum, stipitibus aut illorum residuis aggregatis radicibusque duas trientes lineæ crassis filiformibus flexuosis rigidis tam arcte obtectum, ut vix aut non conspicitur. Stipites pollicares, semilinea paululum crassiores, teretes, paleis piliformibus fuscis flexuosis usque sesquilineam longis adpersi, demum glabrati, basibusque residuis glabris rigidis in rhizomate aggregati, ut fasciculati apparent, quamquam revera sparsi sunt. Frons (in strictissimo sensu) sex- septempollicaris, pollicem lata aut angustior, arcuato-subfalcata, exsiccata nigricans, lineari-lanceolata, acuta, basi angustata, pinnata. Pinnæ (exceptis infimis paullo distantibus) contiguæ, alternæ, petiolulo vix semilineali insidentes, oblongæ, rotundato-obtusæ, inæquilateræ, latere superiori latiore basi truncato, sterili apiceque inæqualiter anguste obtuseque dentato, fertili usque supra medium sorifero subinde dentes laciniaformes elongatos anguste lineares gerenti, apice eodem modo ac in sterili dentato, latere inferiore duplo angustiore laciniato basi acuto vel acutissimo apice ut in latere superiore dentato, lacinii sinu lato interceptis anguste linearibus (exsiccatione apparenter setaceis) acutis simplicibus aut subinde bilobis, lobis divergentibus linearibus acutis. Pinnæ infimæ sensim decrescentes oblongo- et inæquilatere obovatæ. Rachis inferne semiteres (hinc planiuscula illinc convexa), paleis piliformibus sesquilinealibus flexuosis fuscis adpersa, superne teres et glabra. Costo vix prominula, basi satis crassa. Venæ pinnatim exorientes, creberrimæ, uni- bifurcatæ venulisque subparallelæ, in quolibet dente laciniave excurrentes, steriles apice obtusæ liberæ. Parenchyma e cellulis rotundato-hexagonoideis constructum. Sori solummodo in margine superiori pinnarum, apice tamen excepto, obvenientes, exserti, pedicello brevissimo quamquam bene conspicuo insidentes. Indusium linea paululum longius, cylindraceum, basi acutum, limbo brevissimo patente integro. Receptaculum indusio dimidio aut duplo longius, rectum, rigidum, setaceo-cylindricum, apice in globum plus minus regularem incrassatum, basi capsuliferum. Capsulæ lenticulares, sessiles, in facie superiori stellato-multiradiatæ.”—p. 17.

1. *C. atrovirens*, Presl.

This, the only known species, was brought by our countryman, Mr. Cuming, from the Philippine islands. The description of the genus in this instance serves also for that of the species: the number in Mr. Cuming's list is 169.

Genus, NEUROPHYLLUM, Presl.

“Venæ creberrimæ, parallelæ, simplices aut furcatæ, in denticulos frondis excurrentes. Venulæ secundariæ tenuissimæ, venas venulasque transverse arcuatim conjungentes. Sorus denticulo frondis adnatus, subpedicellatus, marginalis. Indusium infundibuliforme, ore integrum vel læviter crenatum. Capsulæ receptaculi clavato-filiformis exserti basi affixæ, sessiles, excentrice disco adnatæ, lenticulares. Species tropicæ, americanæ, typica in Americæ parte occidentali et orientali obveniens. Rhi-

zoma repens, polyrhizum, gemma subglobosa paleis fusco-nigricantibus filiformibus dense oblecta. Frondes sparsæ, approximatae, stipitatae, vix aut non hygroscopicae, transparentes, simplices aut pinnatae, margine mucronato—creberrimeque denticulatae. Stipes digitalis usque spithamæus, faciem frondis indicans, hinc canaliculatus aut planus, illinc convexus. Costa hinc acutangula, illinc convexa, sæpe apice elongata nudaque et gemmam globosam fusco-paleaceam radicantem gerens. Denticuli acuminato-cuspidati, fructiferi, alternis aut pluribus interpositis sterilibus. Venæ creberrimæ, parallelæ, simplices aut furcatae venulisque cum venula marginante anastomosantes ac in denticulos excurrentes. Venulæ secundariæ tenuissimæ, creberrimæ, venas venulasque conjungentes, extrorsum arcuatæ, subinde ex arcu ramulum brevissimum obtusum liberum emittentes, subinde in medio decursu libere et acutiuscule desinentes. Parenchyma e cellulis subrotundis constructum. Sorus apici dentis insidens, pedicellatus aut subpedicellatus aut sessilis. Receptaculum indusio duplo—triplo—quadruplo longius, basi capsuliferum, reliquis longitudine cicatriculis spiraliter dispositis impressis notatum, in prima specie filiformi-setaceum, in altera clavatum.”—18.

1. *N. Vittaria*. *Trichomanes Vittaria*, *DeCand.*

2. *N. pinnatum*. *Trichomanes pinnatum*, *Hedw.* *T. rhizophyllum*, *Cav.* *T. floribundum*, *Humb.*

3. *N. pennatum*. *Trichomanes pennatum*, *Kaulf.*

Genus, MICROGONIUM, *Presl.*

“Venæ internæ, crebræ, pinnatæ, pluries furcatæ, venulis apice infra marginem frondis utrinque ramum arcuformem cum opposito anastomosantem emittentibus, ramo hocce seu arcu latere inferiori plures venulas secundarias tenuissimas costam versus aut intra furcaturam decurrentibus et libere in varia altitudine desinentibus emittente. Sorus immersus. Indusium infundibuliformi-cylindraceum, limbo patente repando. Receptaculum setaceum, indusio longius, basi capsuliferum. Capsulæ lenticulares, sessiles. Rhizoma repens, filiforme, tenue, paleis piliformibus nigro-fuscis tomentellum. Stipes quinque—octolinealis, paleis piliformibus intense fuscis patentibus dense tomentello-pubescent, inferne teres, apice fronde decurrente alatus. Frons usque semipollicaris, ex acuta cuneatave basi ovata, rotundato-obtusa, inæqualiter quinque—octoloba seu grosse crenata, lobis vel crenis rotundato-obtusis obsolete repandis, sinus obtusis plicatis planisque. Costa vix ulla vel brevissima, tenuis, paululum prominula. Venæ internæ, crebræ, e lateribus et ex apice costæ flabellatim exorientes, pluries furcatæ. Venulæ tenues, infra marginem frondis utrinque arcum seu ramum arcuformem cum opposito anastomosantem emittentes, arcu hocce seu ramo latere inferiori plures ramulos seu venulas secundarias tenuissimas intra furcaturam venularum aut versus costam decurrentibus et libere in varia altitudine desinentibus emittente. Parenchyma e cellulis hexagonideo-subrotundis constructum. Sori in apice frondis obvenientes, pauci (unus—duo), immersi. Indusium lineam longum, infundibuliformi-cylindraceum, limbo patente repando. Receptaculum setaceum, basi capsuliferum, indusio longius, sed integrum non observatum. Capsulæ lenticulares, in statu destructionis visæ.”—p. 19.

1. *M. cuspidatum*. *Trichomanes cuspidatum*, *Willd.*

2. *M. Berteroanum*, *Presl.* “*M. fronde oblongo-lanceolata obtusa emarginatave grosse crenata glaberrima basi angustata, crenis subæqualibus obsolete emarginatis, stipite brevi rhizomateque paleaceo-tomentello. Trichomanes reptans, Balbis herb.*

“Habitat in insula S. Domingo, ubi legit infelix Bertero.”—p. 46.

Genus, *ABRODICTYUM*, Presl.

"Venæ prominulæ, ramosæ. Venulæ crebræ, tenuissimæ, flexuosæ, in maculas irregulariter oblongas anastomosantes, ramosæ, venulis secundariis pone marginem longitudinaliter decurrentibus, aliis intra maculas brevibus liberis obtusis. Cellulæ intra maculas transverse lineari-hexagonæ. Sorus exsertus, pedicellatus. Indusium infundibuliforme, limbo patente vel patentissimo integerrimo. Receptaculum indusio triplo longius, setaceum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma lineam fere crassum, breve, oblique repens, teres, fuscum, paleis piliformibus fuscis vestitum, radices filiformes flexuosas simplices breves firmulas emittens, apice apparenter fasciculum frondium gerens, quæ vero tantum aggregatæ et revera sparsæ sunt. Stipes circiter pollicaris, filiformis, teres, glaber, basi ima hinc inde palea piliformi minuta adpersus. Frons (in strictissimo sensu) hygroscopica, elastica, transparens, quadri-quinque-pollicaris, glaberrima, oblongo-lanceolata vel lineari-lanceolata, acuta, tripinnata, apicem versus bipinnata, apice pinnata. Pinnæ infimæ petiolulo semilineali instructæ, ovatæ, reliquæ sessiles, inferiores et mediæ ovato-lanceolatæ bipinnatæ, superiores lanceolatæ pinnatæ, supremæ lineares integerrimæ acutæ. Pinnulæ primariæ et secundariæ sessiles, lineares acutæ, integerrimæ, semilineam latæ, pallide virides (in sicco). Rachis primaria inferne teres filiformis, in reliquo decursu secundariisque tertiariisque foliaceo-alata. Vena in qualibet pinnula solitaria, prominula, ramosa. Venulæ tenuissimæ, flexuosæ, in maculas oblongas sæpe irregulares subinde ad figuram hexagonoideam accedentes anastomosantes, venulis secundariis venulam inframarginalem longitudinaliter et undique decurrentem efficientibus, aliis intra maculas brevibus libere obtuse recteque desinentibus. Parenchyma e cellulis diversis constitutum, cellulæ marginales et spatiorum angustorum macularum sunt nempe hexagonoideorotundatæ, spatiorum latiorum macularum sunt transversæ et lineari-hexagonoideæ. Sori laterales, exserti, pedicello usque fere semilineali instructi, mediocres, pedicello foliaceo-alato. Indusium infundibuliforme, utrinque anguste alato-marginatum, limbo patente vel patentissimo integerrimo vel obsolete repando. Parenchyma indusii e cellulis hexagonoideo-rotundatis constructum. Receptaculum indusio triplo longius, setaceum, rectum aut flexuosum, punctis impressis spiralibus notatum, basi capsuliferum. Capsulæ sessiles, lenticulares."—p. 21.

1. *A. Cumingii*, Presl.

For this beautiful and remarkable fern we are indebted to Mr. Cuming. It was distributed under the numbers 208 and 358. The description of the genus includes that of the species.

Genus, *DIDYMOGLOSSUM*, Desvaux.

This very distinct and beautiful genus was established seventeen years ago by Desvaux, and strange to say, has been neglected by all subsequent filicologists with whose works we are acquainted. It exhibits in an eminent degree the full development of the bifid structure of the limb of the involucre, a character which we believe common to the whole of the Hymenophyllaceæ. We find no trace of this structure in Presl's figure of *Cephalomanes* (the plant itself we have not

examined), but we see no reason for supposing it a departure from a rule that seems little subject to exception.

“Venæ aut flabellatæ pluries dichotomo-furcatæ, aut sæpius pinnatæ simplices ramosæve, steriles apice acuto libero desinentes. Sorus aut exsertus (supramarginalis) subsessilis, aut sæpius immersus (intramarginalis). Indusium infundibuliformi-cylindraceum, limbo bipartito, laciniis ovato-subrotundis obtusis demum patentibus. Receptaculum indusio longius, filiformi-setaceum, plus minus elongatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma repens, filiforme, teres, ramosum. Radices alternæ, filiformes, simplices aut ramosæ, radiculis aut paleis piliformibus vestitæ. Frons hygroscopica, tenera, immo tenerrima, transparent, simplex aut varie divisa, nempe lobata, pinnatifida, pinnata usque supradecomposita, paginis conformibus. Stipes in quibusdam brevissimus l. subnullus, in plurimis varie longus, in omnibus teres, in multis fronde decurrente marginatus. Costa media in speciebus venis flabellatis donatis nulla aut non distinguenda, in reliquis utrinque teres, vix prominula. Venæ vix prominulæ, in *D. punctato*, in *D. sphenoides* et in *D. Hookeri* flabellatæ uni-pluries furcatæ, venulis subparallelis angulo acutissimo exorientibus, in reliquis speciebus venæ pinnatim ramosæ distantes multo pauciores, venulis divergentibus. Parenchyma e cellulis rotundato-hexagonoideis constructum. Sorus in plurimis speciebus immersus seu intramarginalis, in quibusdam et quidem præsertim in illis, quæ venis flabellatis donatæ sunt et in illis, quæ ad subgenus *Chilodium* nuncupatum pertinent, exsertus seu supramarginalis sessilis aut subsessilis aut brevissime pedicellatus. Indusii tubus sæpissime cylindraceus, rarius infundibuliformis, limbus liber bipartitus, laciniis vel partitionibus ovatis aut ovato-subrotundis, obtusis aut acutiusculis, primo adpressis demum patentibus, in quibusdam speciebus purpureo-marginatis, in speciebus ad subgenus *Chilodium* relatis dentato-laciniatis, in omnibus reliquis speciebus subgenus primum seu *Eudidymoglossum* constituentibus integerrimis. Receptaculum indusio duplo—triplo—quadruplo longius, rectum aut plus minus flexuosum (verosimiliter exsiccatione), setaceum, basi ima capsuliferum, in parte superiori nuda punctis oblongis impressis spiraliter ambientibus notatum. Capsulæ lenticulares, sessiles.”—p. 22.

Presl divides this genus into three sections, as under.

* EUDIDYMOGLOSSUM.

1. *D. punctatum*. *Trichomanes punctatum*, *Poir.*
2. *D. sphenoides*. *Tr. sphenoides*, *Kunze*. *Hymenophyllum guadaloupense*, *Spr.*
3. *D. Hookeri*. *Tri. reptans*, *Hook. et Grev. Ic. Fil. t. 32.*
4. *D. reptans*. *Tri. reptans*, *Sw.*
5. *D. muscoides*. *Tri. muscoides*, *Sw.* *T. apodum*, *Hook. et Grev. Ic. Fil. t. 117.*
6. *D. Kraussii*. *Tri. Kraussii*, *Hook. et Grev. Ic. Fil. t. 149.*
7. *D. quercifolium*. *Tri. quercifolium*, *Hook. et Grev.*
8. *D. minutulum*. *Tri. minutulum*, *Gaudich.*
9. *D. alatum*. *Hymenophyllum alatum*, *Schkuhr, Fil. t. 1356.*
10. *D. decipiens*. *Desv.*
11. *D. Filicula*. *Tri. bilabiatum*, *Nees et Bl.* *Hymenoph. Filicula*, *Bory.*
12. *D. brevipes*, *Presl.* “*D. fronde breviter stipitata oblongo-lanceolata acuta pinnata, pinnis subsessilibus oblongis obtusis profunde bipinnatifidis glaberrimis, infimis horizontalibus, laciniis oblongo-lanceolatis obtusis, secundariis (laciniulis) linearibus obtusis integerrimis, soris exsertis sessilibus, indusio infundibuliformi alato—*

marginato, limbi laciniis subrotundis, rachi superne alata, inferne stipiteque subnuda pubescente.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, unde retulit clar. Cuming, et aliis plantis immixtum sine numero communicavit."—p. 47.

13. *D. undulatum*, *Presl.* "*D. glaberrimum*, fronde lanceolata angustato-acuminata pinnata, pinnis petiolulatis lanceolatis acutis profundissime pinnatifidis, laciniis linearibus obtusis integerrimis undulatis, soris exsertis subpedicellatis, indusio infundibuliformi alato, limbi laciniis ovatis obtusis, receptaculo setaceo, rachibus stipiteque alatis, ala undulata.

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, unde retulit clar. Cuming, et aliis plantis mixtum communicavit."—p. 48.

14. *D. serrulatum*, *Presl.* "*D. fronde ovata acuta aut lanceolata utrinque angustata bipinnata, pinnis petiolulatis oblongo-lanceolatis acutis, pinnulis lanceolatis obtusis profundissime pinnatifidis, laciniis inferioribus bilobis superioribus integris lobisque linearibus sinuato-serrulatis, soris exsertis sessilibus, indusii tubo turbinato-infundibuliformi limbi laciniis ovatis obtusis æquilongo, receptaculo setaceo indusium duplo superante, rachibus superne alatis inferne teretibus costisque venisque paleis piliformibus adpersis glabrisve, stipite filiformi paleaceo-hirsuto.* *Cuming, Pl. Exs. Philip. n. 221.*

"Habitat in insulis Philippinis, ubi legit clar. Cuming."—p. 48.

** CHILODIUM.

15. *D. Neesii*. *Tri. Neesii, Blume.* *T. denticulatum, Blume, excl. syn. Sw. et Willd.* *Hym. humile, Nees et Blume, et H. dichotomum, Nees et Blume, nec Cav.*

16. *D. longisetum*, *Presl.* "*D. paleaceo-pubescentis glabratumve, fronde oblongo-lanceolata acuta bipinnata, pinnis petiolulatis oblongo-lanceolatis acutis, infimis suboppositis, pinnulis lanceolatis obtusis inciso-acute serratis basi angustatis, incisuris infimis tri-bidentatis, soris exsertis pedicellatis, indusii tubo cylindraceo-infundibuliformi, limbi laciniis rotundatis denticulatis, receptaculo setaceo longissimo, stipite paleaceo-piloso tereti, rhizomate oblique repente.* *Cuming, Pl. Exs. Philip. n. 189, et n. 134.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. Cuming."—p. 49.

*** CREPIDIUM.

17. *D. humile*. *Trich. humile, Forst.*

Genus, MERINGIUM, *Presl.*

The reader's attention is particularly invited to a very remarkable character in this genus: the involucre, as will be seen from the annexed description, is furnished with two linear-lanceolate, acute, serrated bracteas, which are beautifully exhibited in the figure, *t. viii. f. B.*

"Venæ alternæ, pinnatim ramosæ venulisque subprominulæ et apice libero desinentes. Sorus lateralis, subpedicellatus, basi bibracteatus. Indusii tubus breviter campanulatus, limbo bipartito, laciniis late ovatis obtusis concavis demum divaricatis patentibus. Capsulæ lenticulares, parti inferiori receptaculi filiformis rigiduli crassiusculi indusio longioris affixæ, sessiles. Rhizoma repens, ramosum, filiforme, ramisque radicibusque paleis piliformibus horizontalibus rufis hirsutum. Stipes duos—semiter-

tium pollicem longus, teres, paleis piliformibus flexuosis patentissimis vel divaricatis hirsutus, demum glabrescens. Frons (limbus) fusco-purpurea, tres—quatuor pollices longa, oblonga, basi nempe angustior quam versus apicem, pinnata, pinnis alternis petiolulatis lanceolatis acutis profundissime pinnatifidis vel si mavis pinnatis, in uno latere frondis majores quam in altero, laciniis vel pinnis secundariis sublanceolatis obtusis quinque—quadri—tri—bilobis, lobis linearibus obtusis angulo acuto interstinctis apicem versus argute serrulatis, infimis superioribus pinnularum superiorum in soros oblitteratis et ita angustis ut pedicellum brevissimum mentiantur. Sorus ergo lateralis seu apparenter lateralis, subpedicellatus, multo major quam in *Didymoglossi* speciebus, basi bracteis duabus oppositis lineari-lanceolatis acutis serratis adpressis tubo indusii æquilongis instructus. Indusii tubus breviter campanulatus, limbus tubo duplo longior, profunde bipartitus, laciniis late ovatis rotundato obtusis concavis patentibus demum divaricato-patentibus. Receptaculum indusio triplo fere longius, filiforme, rigidulum, quemadmodum in *Trichomanis* paragrapho tertia *Pachychætum* dicta crassiusculum, cicatriculis spiraliter ambientibus sub lente composita visum instructum, rectum vel curvatum. Capsulæ in inferiori parte receptaculi affixæ, lenticulares sessiles.”—p. 24.

1. *M. Meyenianum*. Hymenophylli species, *Meyen, herb.*

2. *M. Blumeum*. Hym. pectinatum, *Nees et Blume*. Hym. Blumeum, *Spr.* Presl places this species doubtfully in *Meringium*.

Genus, HEMIPHLEBIUM, Presl.

“Rachis in costas duas—tres pinnatim ramoso. Vena inframarginalis, interna, tenuissima, continua, latere interiore venulas plurimas tenuissimas simplices (rarissime duabus in unam coalescentibus) et rachim costamque versus directas ac libere desinentes emittens. Sorus aut exsertus (supramarginalis) subsessilis, aut semiimmersus (inframarginalis). Indusium infundibuliforme, limbo bipartito, laciniis ovato-semiorbicularis marginatis. Receptaculum indusio longius, filiformi-setaceum, elongatum, basi capsuliferum. Capsulæ sessiles, lenticulares. Rhizoma repens, tenuissimum, filiforme, ramosum, paleis piliformibus fuscis vestitum. Radices minutæ, filiformes, piloso-tomentosæ. Herbula semipollicaris, sæpe minor. Frons hygroscopica, tenerrima, transparent, simplex, bi- triloba, margine pilis stellato-pluriradiatis remotiusculis instructa, paginis conformibus. Stipes vix linealis, fronde decurrente marginatus, ima basi nudus teres tenuissimus, fuscus. Rachis fusca, teres, prominula, juxta numerum lorum frondis in tot costas quoque fuscas teretes vix prominulas pinnatim divisa. Vena tenuissima, exorians ad utrumque latus baseos rachidis, infra marginem frondis circum circa excurrens et continua et cum apice costarum ad dextram et sinistram anastomosans, emittens ex latere interno venulas plurimas rectas tenuissimas versus costam rachimque directas et apice acutissimo libere desinentes ut plurimum simplices rarissime duas in medio latere in unam confluentes. Parenchyma transparent, e cellulis subrotundo-hexagonis subregularibus constructum. Sorus aut exsertus sessilis, vel obsolete pedicellatus aut semiimmersus, in quovis lobo frondis superiori solitarius. Indusium infundibuliforme, convexum, limbo bipartito, laciniis seu partitionibus semiorbicularibus elevato-purpureo-marginatis sinu obtuso interceptis parallelis æquilongis appositis. Receptaculum indusio plus quam duplo longius, setaceum, rectum, punctis spiraliter ambientibus notatum, basi capsuliferum. Capsulæ lenticulares, sessiles, crebræ.”—p. 25.

1. *H. pusillum*. *Trichomanes pusillum*, *Sw.*

(To be continued).

ART. CCXXXI. — *Varieties.*

501. *Note on Ceanothe pimpinelloides.* Allow me to make a few observations upon the notice of this plant (Phytol. 1020 and 1031), in which my name is brought prominently forward; and first, to state that Mr. Ball's paper, which is there referred to, is contained in the last number of the 'Annals of Natural History,' and that a paper of mine, upon the same subject, is already printed off for the next number of that journal. To these I must refer Mr. Lees for the detailed reasons which have led Mr. Ball and myself now to consider that we possess three *Ceanothus* in this country, to which the names of *C. pimpinelloides*, *C. Lachenalii*, and possibly *C. peucedanifolia*, may be applied. In common with Mr. Ball, I consider the first to be "very rare," since we only know of its existence in Gloucestershire and Worcestershire, from Mr. Lees' observations, and near Weymouth, from specimens gathered by Mr. Garnons. A "very rare" plant is often abundant in a few places. The observation that this species inhabits dry places is highly interesting, and I believe new, as in all the books to which I have, at this time, the opportunity of turning, the true *C. pimpinelloides* (not that of Smith) is stated to inhabit damp places. *C. pimpinelloides* (*Linn.*) was quite unknown to me as a British native, until I received information concerning it from my friend Ball, and specimens from Mr. Garnons; and as I had indisputable proof that the plant so called by Smith, is the *C. Lachenalii*, I had no other course to pursue in the Manual, than that of omitting the former and introducing the latter name. *C. Lachenalii* always, as I believe, inhabits salt marshes, or at least, marshes near the sea, a situation in which the plant called *C. peucedanifolia* by English botanists has not, to my knowledge, ever been found. I have so often seen *C. Lachenalii* misnamed as *C. peucedanifolia*, that I am led to suspect that even Mr. Lees may have fallen into this error, especially as he speaks of the "elliptical sessile knobs" of *C. peucedanifolia*, in which the knobs are really of an oblong-clavate form, whilst in *C. Lachenalii*, they scarcely deserve the name of knobs, but are rather to be described as long, fleshy, knotted fibres. On this subject however I must refer to the papers already mentioned. It is not necessary to occupy space here with an attempt to determine the plant to which the name of *C. peucedanifolia* really belongs, as I have entered fully into the discussion of that very difficult question in the same paper. From the above it will be seen that I venture to differ from one of the conclusions arrived at by Mr. Lees, and put into the form of an abstract by the reporter of the London Botanical Society's meeting, viz.,

doubting if the *Œ. peucedanifolia* of British authors is found in salt marshes, and believing that it is *Œ. Lachenalii* that inhabits them. It is also not a little singular that so acute an observer and excellent a botanist as the compiler of the London Catalogue, having, as we now learn, specimens of both *Œ. pimpinelloides* and *Œ. Lachenalii* before him, should have excluded from his list that which he will probably now allow to be the more common plant, and inserted one which is very local in its distribution.—*Charles C. Babington ; Ross, Herefordshire, July 14, 1844.*

ART. CCXXXII.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, June 13, 1844. Professor Graham, President, in the chair.

After a delightful walk through the garden and plant houses, accompanied by the learned President, who pointed out many of the beautiful specimens which they contain, the meeting re-assembled in the class-room, when the following papers were read.

I. On four genera of Desmidiæ ; by Mr. John Ralfs, Penzance. The genera are *Cosmarium*, *Pediastrum*, *Xanthidium* and *Scenedesmus*, and the descriptions of them, which were accompanied by illustrative drawings, will shortly appear in the ‘Annals and Magazine of Natural History.’

II. Continuation of Mr. James M’Nab’s Journal of a Tour through part of the United States and the Canadas. In the previous part of this journal, Mr. M’Nab gave a brief outline of the principal botanical and horticultural features observed in the neighbourhood of New York. The part now read, embraced chiefly the appearance of the country around Albany, with an account of the most interesting plants seen during the journey thither. Among these the most remarkable were several species of *Lycopodium*, with which the peaty soils on the road sides around Albany were covered, consisting of *L. complanatum*, *clavatum* and *dendroides*, the latter resembling at a distance young spruce fir-trees — being similarly shaped and of a lively green colour. In damp situations in the close forests, *Adiantum pedatum* and other ferns covered large tracts, while *Pyrola elliptica* and *rotundifolia*, with *Chemophylla maculata* and *umbellata* were in full flower along the drier parts. *Satyrion herbiola* and *Neottia tortilis* were also observed—the latter growing chiefly in pairs. The principal plants noticed in the meadows or open grounds were *Lilium Philadelphicum* and *Canadense*, *Mimulus ringens*, *Verbena hastata* and *Urticæfolia*, and

Asclepias obtusifolia and *variegata*. Proceeding towards Troy, on the banks of the Hudson, great quantities of *Kalmia angustifolia*, *Cornus florida*, *Lupinus perennis*, *Andromeda*s, *Vaccinium*s &c., occurred. In an extensive forest, chiefly composed of small trees, and much entangled with *Smilax*, or green brier, through which the party proceeded with great difficulty, *Cypripedium spectabile* covered large patches, with *Arum triphyllum*, the latter in full flower. Mr. M'Nab concluded the present part of his journal with an account of some large trees of the hemlock spruce, *Abies canadensis*, being the first of this tree which the party had observed in natural situations:—the largest specimens were about 10 feet in circumference, and 80 feet in height.

The Honorable G. C. Cunningham, Mauritius, and F. S. Cordier, M.D., Paris, were elected foreign members; and Alfred Greenwood, Esq., Chelmsford, Essex, a non-resident Fellow of the Society.

BOTANICAL SOCIETY OF LONDON.

July 5, 1844.—Dr. Francis Bossy in the chair.

Specimens of the following plants were exhibited, sent to the Society by Mr. Hewett Watson.

Carex elongata (*Lin.*), found abundantly in Weybridge marshes. This locality is interesting to the metropolitan botanist; the nearest habitat previously on record being in the county of Salop.

A pubescent-flowered variety of *Bromus commutatus* (*Schrad.*), found plentifully, along with the more abundant glabrous form, in a meadow by the river Mole, between Esher and West Moulsey, Surrey. This variety affords another instance to prove the little importance which can be given to the character of smooth or downy flowers, as a specific distinction in this genus. It will form an addition to the 'London Catalogue of British Plants' (b. *pubens*), to be entered under "*Bromus* (1355) *commutatus*."

A specimen of *Lolium multiflorum*, the root of which was dug up, when in flower, in a sown field last year, and the plant is now copiously flowering in Mr. Watson's garden; thus proving its perennial existence, although the alleged annual root of *L. multiflorum* has been considered the best distinction between this supposed species and *L. perenne*. The other alleged differences are equally invalid.

Garden specimens of *Festuca pratensis* (*Huds.*) and *F. arundinacea* (*Schreb.*), to show the strongly marked differences between them; the latter being three times the size, extremely harsh to the touch, and very dissimilar in its flowers and mode of inflorescence. In *F. pra-*

tensis the branches of the panicle are erect after flowering, the paleæ or glumes obtuse and awnless, and the sheaths of the leaves nearly smooth : in *F. arundinacea*, the branches of the panicle are horizontal or reflexed, the glumes acute and awned, and the sheaths and leaves very rough.

Mr. W. admitted *Festuca loliacea* and *pratensis* to be forms of one species ; indeed he had shown this to the Edinburgh botanists, just after they had printed their Catalogue, in which *F. loliacea* is kept as a distinct species, while *F. pratensis* is united with *F. elatior* (*Linn.*) But he was not yet prepared to combine all three, and *F. arundinacea* likewise, under the one name of *F. elatior*, as is done by Mr. Babington. Mr. W.'s plant of *F. arundinacea* was originally brought to his garden from the Isle of Wight, and is now a large sheaf, with hundreds of flowering stems, five to seven feet high, and the root-leaves half a yard long.

A specimen of *Œnanthe pimpinelloides* (*Linn.*), to show the cylindrical form of the fruit, which exactly corresponds with that of the Sardinian plant (admitted to be the true species), except in having two callosities at the base. This was taken from a plant in Mr. W.'s garden, the parent of which had been brought thither from a hedge-bank in the Isle of Wight. Mr. W. recognized a second species in Britain, often sent to him under the name of *Œ. peucedanifolia*, and readily distinguished by its turbinate or elliptic fruit, upon extremely short pedicels, and more resembling *Œ. globulosa* than *Œ. pimpinelloides*. The peculiar form of the root to some other specimens, resembling that of a Dahlia in miniature, induces a supposition that there may be a third species, although Mr. Watson has satisfied himself that the roots vary greatly with age and situation, and do not afford such certain characters for distinction as may be found in the fruit. The *Œ. Lachenalii* (of Babington's Manual) is apparently the species frequently sent under the name of *Œ. peucedanifolia*, though occasionally named *Œ. pimpinelloides* by English botanists. Mr. W. would illustrate this subject more fully on another occasion.

Specimens of the garden fennel, to show the little importance to be attached to the difference of the stems being fistulose or filled with pith. These specimens were sections of stems arising from a single root, of different dimensions, but of nearly equal age and stage of development. Some of them (the thicker) were hollow, others filled with pith. A question respecting a distinction of species, between the wild and garden fennels, has been raised in consequence of one author describing the stems as fistulose, while another finds them solid ; but

since both conditions can exist on one root, at the same time, such a distinction would be quite inadmissible for a specific character.

A stem of *Hieracium Lawsoni*, which had borne twenty flowers in Mr. W.'s garden, this spring; and others had flowered more numerous than this one. In the wild state, on the Grampians (the locality from which the plants were brought three years ago), this species has usually two, three, or four flowers only. He had seen a wild Irish specimen with six or eight flowers. No care had been bestowed upon the plants in his garden, except occasional watering in dry weather, and removal of weeds from about them. Mr. W. sent the specimen merely as an example of the little dependence to be placed upon the number of flowers on the *Hieracia*; indeed among the *Compositæ* generally. A wild plant, growing free from the interference of other plants about it, might also increase its flowers five or ten fold, as practical botanists must be well aware, from observation.

Read, "A Synoptical View of the British Fruticose Rubi, arranged in Groups, with explanatory remarks," (part 4); by Edwin Lees, Esq. F.L.S. The paper was accompanied by drawings and specimens. — *G. E. D.*

MICROSCOPICAL SOCIETY OF LONDON.

June 19, 1844. Dr. J. S. Goodfellow in the chair.

A paper was read by Edwin J. Quekett, Esq., On an apparently new form of vegetable discharged from the human stomach, belonging to the class *Algæ*. Mr. Quekett, after noticing numerous instances where parasitical plants have been found on the exterior of man, as well as of the lower animals, where they constitute diseases which often cause the death of the creature so affected, proceeded to describe several instances where vegetation evidently existed in the interior of the body, and in the stomach especially. In the case alluded to, continued sickness prevailed in a constitution much debilitated by disease of the liver, the matter ejected putting on the appearance of coffee-coloured flakes in a transparent gelatinous fluid. On submitting the flakes to the microscope, they appeared to consist solely of vesicles of about the $\frac{1}{38000}$ part of an inch in diameter, adhering to each other in a beaded manner, seldom however extending beyond three or four, or otherwise in a tetrahedral form. The vesicles appear to contain granular matter, much resemblance existing between them and the yeast-plant, *Torula Cerevisiæ*, but not identical with each other.

After some discussion as to the real nature of these bodies, the Society adjourned until October next.—*J. W.*

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ART. CCXXXIII. — *Notes of a Botanical Ramble in Yorkshire, &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

ON the 28th of 6th Month (June), our party, consisting of John Tatham jun., of Settle, James Backhouse, James Backhouse jun., and Silvanus Thompson, of York, and G. S. Gibson, of Saffron Walden, left York for Darlington; and thence proceeded by way of Bishop Auckland, to Crook, where we left the railway, and took the road for Wolsingham, distant about six miles, up the valley of the Wear. On the wooded banks of the river we found *Rosa villosa*, *Myrrhis odorata*, *Arenaria verna*, *Geranium sylvaticum*, *Salix nitens* and *Stellaria nemorum*. These plants, with the exception of the two latter, were frequently met with in subsequent parts of our excursion; and they may be considered common plants in this district. We were struck with the large quantity of *Myrrhis odorata*; and we found it so often in places remote from cultivation, that we could not doubt its being indigenous, though supposed by many botanists to be an introduced plant.

Leaving the main river, we turned up one of its southern branches, the Bollihope, in order to visit Bishopley Crag, a series of limestone cliffs between which the river forces its way. Here we saw *Hieracium murorum* (*Babington*), *Crepis paludosa*, *Campanula latifolia*, *Asplenium viride*, *Myosotis sylvatica*, *Festuca calamaria*, &c.; these also, with the exception of the last, are not uncommon plants in Teesdale.

On the moor above the Bollihope, we observed *Festuca rubra*, *F. ovina*, *γ. tenuifolia*, *Viola lutea* var. *amæna*, *Empetrum nigrum*, *Myosotis repens* &c.; and on Middleton Fell, *Saxifraga stellaris*, *Rubus Chamæmorus*, *Carex intermedia*, *Eriophorum vaginatum*, &c. By keeping too far to the south of the ridge separating Weardale from Teesdale, we had to ascend several steep hills covered with ling, and cross the intervening valleys, which, at the end of a long day's journey, was very fatiguing. After a walk of about twenty-seven miles, we arrived late in the evening at the High Force Inn. The country

through which we passed, presented considerable diversity of wood and bleak trackless moors, the latter of which are generally unfavourable for botanizing.

The next morning we set out for Widdy-bank Fell, Cauldron Snout and Falcon Clints; which comprehend a district probably the richest in Teesdale for a botanist. Passing along the Alston road for about two miles, we gathered *Trollius europæus*, *Cnicus heterophyllus*, *Polygonum viviparum* and *Primula farinosa*, which we saw in most of the moist meadows. Leaving the road, we crossed Langdon foot-bridge, and followed the course of a mountain stream, now much diminished in consequence of the long drought. Along its margin we found *Sedum villosum*, *Tofieldia palustris*, *Saxifraga aizoides*, *Bartsia alpina*, *Kobresia caricina*, *Potamogeton plantagineus*, *Cochlearia groenlandica*? *Armeria maritima*, *β. alpina*, &c.; and on the top of the Fell, *Gentiana verna*, *Thalictrum alpinum*, *Lycopodium alpinum*, *Selago* and *selaginoides*, *Juncus triglumis*, *Carex capillaris*, *curta*, *dioica* and *ampullacea*, *Rubus Chamæmorus*, *Arabis hirsuta*, *Gnaphalium dioicum*, *Plantago maritima*, &c. Here we found a small plant resembling a *Spergula*; but being unable to identify it with any described British species, we transmitted a specimen to Sir W. J. Hooker, and soon received from him the gratifying intelligence that it was *Spergula stricta*, a plant not previously found in the British islands. It occurred very sparingly, and from its growing among *Arenaria verna*, which, when out of flower, bears considerable resemblance to it, it was difficult to detect. We saw no trace of it in any subsequent part of our excursion, although we searched carefully in many likely localities.

We next visited Cauldron Snout, a cataract of the Tees where the river is precipitated in a broken fall of about two hundred feet down a dark basaltic gorge. In consequence of the small quantity of water, this, as well as most of the other falls, was less striking than usual; from the foot-bridge across the fall, a fine view of it is obtained, and the beauty of the scene is increased by a range of lofty basaltic crags, called Falcon Clints, which commence here, and extend along the side of the river for about a mile and a half. We scrambled over the debris at the foot of these crags, carefully examining the face of the scar for *Woodsia ilvensis*: we succeeded in finding three small plants of it, growing in the fissures of the basalt. When first gathered by James Backhouse, twenty-three years ago, it was considerably more abundant and luxuriant than at present.

We noticed also upon the rocks and among the debris, many com-

moner ferns, such as *Allosorus** *crispus*, *Asplenium viride*, *Polypodium Phegopteris*, *P. Dryopteris*, &c. At one place, where the limestone appears, we gathered *Polystichum Lonchitis*, more than fifteen inches in length, but in very small quantity. We also saw *Epilobium alsinifolium*, *Hieracium diaphanum* and *Lawsoni*, *Viola flavicornis*, and a single plant of *Saxifraga umbrosa*, var. *crenata*. In a marshy spot near the junction of Maizebeck with the Tees, we gathered *Saxifraga stellaris* in great profusion, and remarkably large. Returning by Whetstone Sill, we noticed *Habenaria albida*, *Salix arenaria*, *Equisetum variegatum*, *Carex capillaris* and *Bartsia alpina*, the two last nearly a foot in height. We returned to the inn to tea, and afterwards went down to the High Force; the rocks here are of basalt overlaying limestone, down which the river pours in an almost unbroken fall of sixty-nine feet in height, into a dark basin, and runs along a deep ravine among high perpendicular rocks.

Several rare plants are found here, among others, *Hieracium rigidum* and *Lawsoni*, *Crepis succisæfolia*, *Sesleria cærulea*, *Poa Parnellii*, *Melica nutans*, *Potentilla fruticosa*, *Solidago Virgaurea*, β . *cambrica*, *Carex rigida*? *Geum rivale* &c.; and on the scars beyond, we gathered *Arbutus Uva-ursi*. This has hitherto been considered the only locality for *Poa Parnellii*, which we found growing abundantly on the rocks, but scarcely come to perfection.

On the 1st of 7th Month we started early for High-cup Scar, taking Falcon Clints on the road, the upper series of which we partially explored, but found little fresh. On the way thither we gathered a few specimens of the rare *Hieracium Lapeyrousii*, and near Cauldron Snout discovered a fresh locality for *Poa Parnellii*.

Leaving Cauldron Snout to the right, we followed Maizebeck from its junction with the Tees; along its banks we gathered *Botrychium Lunaria*, *Myosotis repens*, *Saxifraga stellaris*, &c. Taking a branch of Maizebeck to the left, and following it almost to its source, we crossed over Scordale Head, and visited Gaskill tarn on its summit, a body of water of considerable extent, but affording no plants worthy of notice. Hence we descended towards the head of High-cup Scar, an enormous opening in the mountains of about one thousand feet in depth, nearly surrounded by perpendicular basaltic crags, and resembling in shape the hull of a large vessel: the lower part is chiefly covered with debris interspersed with patches of short grass; it is up-

* In this, and a few other instances, we have, with permission, altered the nomenclature of the ferns.—*Ed.*

wards of a mile and a half in length, and half a mile across in the widest part. The great depth of the valley below, and the dark shade of the rocks, entirely destitute of trees, give the whole a very striking aspect. The view of it from the upper extremity, with the fertile vale of the Eden in the distance, bounded by Helvellyn and many of the Cumberland mountains, is very grand and imposing.

There are several gorges in the sides of the Scar, formed by the descent of mountain streams; and in two of these *Saxifraga nivalis* is found in tolerable abundance (Phytol. 894). We obtained several specimens, though it flowered but sparingly, probably on account of the dryness of the season. Much of it grows in inaccessible places, consequently there is little danger of its being exterminated, although it appears to be confined to a small locality. In these gorges we also noticed a peculiar variety of *Chærophyllum sylvestre*, with deeply incised, shining, dark leaves, and a nearly smooth stem, which we were at first inclined to think a new species, but not being able to discover sufficiently distinctive characters, we were compelled to consider it merely a mountain variety. We also found a third locality for *Poa Parnellii*, which appears to be generally confined to basaltic rocks. *Rhodiola rosea* grows in this Scar in great profusion; *Saxifraga hypnoides* and *platypetala*, *Draba incana* and *Thlaspi alpestre* occur more sparingly.

After a difficult descent to the bottom, we ascended the opposite side, and found *Epilobium alsinifolium* near the source of a small stream. We then followed a track which led to Dufton, a small mining village, where there are two small inns, to one of which we bent our steps.

The next day we explored some other portions of High-cup Scar, but without any great success; we noticed however *Polypodium calcareum*, *Hieracium Lawsoni* and *murorum*, *Melampyrum pratense*, *β. montanum* &c. Returning along Maizebeck we gathered one or two specimens of *Potentilla alpestris* upon the rocks; then crossing the moors, and following the course of the Tees, we came to the foot of Cronckley Fell, a craggy basaltic mountain, about eighteen hundred feet in height. Ascending it on the western side, we again met with *Epilobium alsinifolium*; and on the rocks above, saw *Arbutus Uva-ursi* in great abundance, and remarkably full of fruit: it was formerly collected in the neighbourhood for medicinal purposes. On a grassy slope near the summit we gathered *Dryas octopetala*, *Hippocrepis comosa*, *Helianthemum canum*, *Gentiana verna*, *Juncus triglumis*, *Carex capillaris* (in its usual form, about an inch and a half in height),

Tofieldia palustris, *Saxifraga hypnoides* &c. Descending by a miner's path, we crossed the Tees and returned to our old quarters.

As there were several localities in the vicinity of the High Force which we wished to explore, we concluded to devote the following day to this object, and therefore set out for Winch Bridge, a mile and a half distant. On the road-side we gathered a tetragonous *Epilobium*, which we took to be *E. virgatum* of Babington; we also noticed it in several other places in the course of our journey: observation upon it in its different localities, leads us to doubt its specific distinctness from *E. tetragonum*.

Winch Bridge, is a small suspension bridge for foot-passengers across the high rocks, which here overhang the Tees; it is prettily situated among extensive plantations, and its beauty is much enhanced by the foaming of the river, as it rushes over the rocks beneath. Here we found *Hieracium Lapeyrousii*, *rigidum*, α . and β . (?), *muro-rum*, *umbellatum* and *Lawsoni*, *Crepis succisæfolia*, *Thlaspi alpestre*, *Potentilla alpestris*, *Melampyrum sylvaticum*, *Carex rigida*? *Galium boreale*, *Bartsia alpina*, *Rumex aquaticus*, *Rubus saxatilis*, *Equisetum variegatum* and *sylvaticum*. We also discovered a fourth locality for *Poa Parnellii*, and another single plant of *Saxifraga umbrosa*, β . *crenata*. We also observed an *Equisetum*, evidently different from the common species, which proved to be *E. umbrosum*. Though too late for the fertile stems, the habit of the plant readily distinguished it. It somewhat resembles small plants of *E. fluviatile* [*Smith* not *Linn.*], but is paler in colour, and has a deeply furrowed scabrous stem, almost destitute of branches on the lower half. It grew in profusion on the Yorkshire side of the river. After having spent a considerable time here, we proceeded northward towards a farm-house called Moor Riggs, and on the way thither met with *Salix laurina* and *amygdalina*: *Pyrola minor* was also gathered sparingly. In a moist meadow near a cottage on the top of a neighbouring hill, we rediscovered *Vaccinium uliginosum*, which had been gathered there thirty years previously, by the late Dr. Oliver and James Backhouse: it is confined to a small space, and we could see no traces of either flower or fruit. Being desirous of examining more completely the various *Hieracia* which abound on the banks of the Tees, we devoted the remainder of the day to this object, although they were scarcely far enough advanced to admit of our doing this satisfactorily.

(To be continued).

ART. CCXXXIV. — *Notice of 'Essays on Natural History, chiefly Ornithology.'* By CHARLES WATERTON, Esq. Author of '*Wanderings in South America.*' Second Series. London: Longmans, 1844.

THE greater portion of this delightful little volume, as may be gathered from its title, is devoted to Mr. Waterton's favourite science, Ornithology; still, it contains quite enough of botanical matter, and that, too, of the most pleasing character, to render it a legitimate subject for a notice in our pages. Even were it otherwise, we should deem it but a partial discharge of the debt of gratitude due to the memory of one, who laboured long and ardently in the cause of science, to aid by our humble efforts the kindly motive which has led to the appearance of the present volume of Essays.

The author informs us, in his brief Preface, that when the late Mr. Loudon requested him to write a few papers which might be formed into "a little book of Essays," he had awful fears, lest, in disregarding the wholesome truth conveyed in the Spanish adage, — "Happy is the man who has written no more than one book," — he should lose the reputation he had formerly gained by the '*Wanderings.*' "Great then indeed," continues Mr. Waterton, "must be my anxiety on the present occasion, when I am rash enough to deviate another time from the Spanish line of certitude, into the mazes of chance and danger; where the track which I am to pursue is ill defined and flinty, and may possibly lead me and my new little book into some quagmire or other; there to perish without assistance; the scorn of the critics, and the pity of disappointed friends. However, be this as it may, my die is cast, my steam is on, and I am already at the opposite bank of the Rubicon."

In a subsequent paragraph, the author playfully defies the attacks of the critics; telling them that he again offers them half a day of occupation, for which they ought to be thankful, "at a season when work is not always to be obtained." But what critic could dip his pen in gall and therewith record a philippic against a work called into being by one of the holiest impulses that can direct human actions? Who could direct an envenomed shaft against this second volume of Essays, after reading the following passage?

"The volume which I now present to an indulgent public, is an unsolicited donation to the widow of my poor departed friend Mr. Loudon, whose vast labours in the cause of science have insured to him an imperishable reputation. If this trifling present on my part shall be the medium of conveying one single drop of balm to the

wound, which it has lately pleased Heaven to inflict on the heart of that excellent lady, my time will have been well employed, and my endeavours amply requited.”—p. iv.

To those who are acquainted with Mr. Waterton’s writings, we scarcely need say that from almost every page of the present volume, beams forth the same enthusiastic love of Nature and Nature’s works as gave life and animation to the previous productions of his pen. And it is pleasant to think that the mind which could conceive and the hand that could trace the living pictures of the ‘Wanderings,’ can still, after the wear and tear of sixty years, present us with such delightful sketches as the following! Sure we are that the heart of every one, who knows aught of the charms of a country life, will acknowledge its truthfulness.

“To me, whom kind Providence has destined to spend the best part of my time in the open air, the song of birds is soothing beyond expression; and whilst I am admiring the beauty of the rising flowers around me, I know no greater addition to my gratification than that of listening to it. How enchanting is it to inspect the early snow-drops, those “fair maids of February,” whilst the stormcock is pouring forth his newly acquired notes from the top of a neighbouring elm! and how delightful it is to hear cock-robin’s carol on the thorn that affords a shelter to the humble primrose! The lily of the valley, too, sweet, lovely, lowly daughter of May, how I gaze in ecstacy on its virgin whiteness, whilst the stranger cuckoo’s note sounds through the dell, and insures me the return of warmer weather! The chaffinch, too, and the whitethroat, and the thrush, and the blackbird, with pretty jenny-wren, and the hedge-sparrow, all add charms inexpressible, by their sweet notes, to the rising flowers of the dale.”—p. 3.

Like most country gentlemen, Mr. Waterton, as is well known, has certain predilections, or, as some would call them, prejudices, both political and religious; but the Wanderer is too amiable ever to allow them to interfere with the charities of private life. And if, sometimes, they *will* make their appearance in an Essay on Natural History, there is always such a redeeming air of pleasantry about them, and a something so droll in the union of the two subjects, that it is quite impossible to suppress a smile, even at the most biting of the author’s sarcasms. Witness the following Essay on

“The Powers of Vegetation.”

“In those good days of old, when there were no corn-factors in England to counteract that part of our Redeemer’s prayer, “Give us this day our daily bread,” by hoarding up vast stores of grain, until mouldiness and vermin have rendered it unfit for the use of man, there stood at Walton Hall a water-mill, for the interest of the proprietor and the good of the country round. Time, the great annihilator of all human inventions, saving taxation and the national debt, laid this fabric low in ruins some sixty years ago; and nothing now remains to show the place where it once stood except a massive millstone, which measures full 17 ft. in circumference. The ground where the mill stood having been converted into meadow, this stone lay there unno-

ticed and unknown (save by the passing hay-maker) from the period of the mill's dissolution to the autumn of the year 1813, when one of our nut-eating wild animals, probably by way of a winter store, deposited a few nuts under its protecting cover. In the course of the following summer, a single nut having escaped the teeth of the destroyer, sent up its verdant shoot through the hole in the centre of the procumbent millstone.

"One day I pointed out this rising tree to a gentleman who was standing by; and I said, 'If this young plant escape destruction, some time or other it will support the millstone, and raise it from the ground.' He seemed to doubt this.

"In order, however, that the plant might have a fair chance of success, I directed that it should be defended from accident and harm by means of a wooden paling. Year after year it increased in size and beauty; and when its expansion had entirely filled the hole in the centre of the millstone, it gradually began to raise up the millstone itself from the seat of its long repose. This huge mass of stone is now 8 inches above the ground, and is entirely supported by the stem of the nut-tree, which has risen to the height of 25 ft. and bears excellent fruit.

"Strangers often inspect this original curiosity. When I meet a visitor whose mild physiognomy informs me that his soul is proof against the stormy winds of politics, which now-a-days set all the world in a ferment, I venture a small attempt at pleasantry, and say, that I never pass this tree and millstone without thinking of poor old Mr. Bull, with a weight of eight hundred millions of pounds about his neck."—22.

Kindly affectioned as he is towards all things that live, yet is Mr. Waterton's love poured out in its fullest measure upon the feathered race. And in proportion as the tenants of air are protected or persecuted, defended or injured by other tribes, so are the latter esteemed or contemned by the kind-hearted Wanderer. These feelings are even extended to the vegetable kingdom; and among trees and shrubs, such as afford to his winged favourites the greatest amount of food and shelter, enjoy the largest share of Mr. Waterton's regard. Of these the holly, the yew and the ivy, have each an Essay devoted to them, all of which claim our attention. And standing first in order, as the tree apparently does in Mr. Waterton's esteem, we begin with a few extracts from the Essay on

The Holly.

"I am very partial to the holly, the yew, and the ivy. They give both food and shelter to the birds; whilst their charming green foliage makes us almost forget that winter has set in. The holly claims my preference; for, in addition to food and shelter, it affords an impenetrable retreat to those birds which take up their quarters on its branches for the night.

"Our ancestors knew and felt the value of the holly hedge, when the wintry blast whistled through the naked hawthorn. Hence they raised it as a barrier against the north; and, on the breaking of the clouds at noon, they would resort to the protection which it offered, and there enjoy the sun's delightful presence. But modern innovation, which, in nine times out of ten, does more harm than good, seems to have condemned the holly hedge as a thing of stiff unsightly form, and in its vacant place has

introduced a scanty sprinkling of isolated plants. I own that I am for the warm arboreal plan of ancient days; and thus I never pass a garden where yew and holly hedges grow, without stopping to admire them, and then I proceed onwards with favourable notions of the owner's taste.

"But, to the holly in particular. I am so convinced of its utility both to men and birds, that I have spared no pains in rearing it as a shelter from the cold, when Boreas, sure harbinger of storms, sweeps over the dreary waste.

* * * * *

"I consider a regularly formed clump of hollies to be the perfection of beauty, in grouped arboreal design. One single tree of mountain ash in the centre of this would add another charm to it, and would be of use to the ornithologist at the close of summer. When the holly trees are in full bearing, and the berries ripe, we may roam a long while through the whole extent of British Botany, before we find a sight more charming to the eye than the intermixture of bright red and green which this lovely plant produces.

"I have a fine circular clump of hollies here, under which the pheasants are fed; and to which, throughout the whole of the winter, a vast number of sparrows, green linnets, buntings, blackbirds, and some starlings resort, to take their nocturnal repose in peace and quiet. The holly sheds a large proportion of its leaves after the summer has set in. These remain on the ground in thick profusion. So formidable are their hard and pointed spikes to the feet of prowling quadrupeds, that neither the cat, nor the weasel, nor the foomart, nor the fox, nor even the ever-hungry Hanoverian rat, dare invade the well-defended territory. Hence the birds, which in yew-trees and ivy, would be exposed to inevitable destruction from the attacks of these merciless foes, are safe from danger in the holly bush."—p. 32.

The author feelingly laments over the destruction of the holly-trees, occasioned by a vile practice of "strolling vagabonds," who strip off the bark and sell it to the makers of bird-lime. He says that "so common has this act of depredation been in this vicinity, that I should be at a loss to find a single holly tree, in any hedge outside of the park wall, that has escaped the knife of these unthinking spoilers." An instance is adduced of a magnificent variegated holly, which annually bore a large crop of berries. One morning the bole of this tree was found stripped of its bark for full two feet in length. The tree survived the injury until the third year, when it died.

The Yew Tree.

"I am extremely partial to the yew-tree. It has already repaid me for the pains which I have taken in its cultivation; and when I resort to my usual evening stand, in order to watch the flocks of sparrows, finches, and starlings, whilst they are dropping in upon the neighbouring hollies, I feel not the wintry blast; as the yew trees, which are close at hand, are to me a shield against its fury; and, in fact, they offer me a protection little inferior to that of the house itself.

* * * * *

"Charming is the appearance of the yew tree after the sun has passed the autumnal equinox. The delicate crimson of its fruit, with the dark green leaves behind it,

produces an effect so pleasing to the view, that it can scarcely be surpassed by anything which the southern forests present to the lover of Botany, as he wanders through their mazes.

“The bole of this tree possesses the power of effectually reproducing a supply of main branches, after the original ones have been severed from it by the axe of the woodman. At Lupset Hall, the residence of our former honest member for Wakefield, Daniel Gaskell, Esq., there stands a lordly yew, by far the most gigantic of any in this neighbourhood. At some period of time, now long gone by, all its larger branches have been cut away from the stem. Others now supply their place; and by the present healthy aspect of the tree, we may conclude that, at some future day, this second series of main branches will have attained a growth and vigour equal to what the original ones would have presented to us, had they been allowed to remain on the tree.”—p. 60.

Speaking of the yew-trees growing near our old churches, Mr. Waterton is of opinion that they were planted in such situations for “the facility of obtaining sprigs and branches to be used during the processions.” We must confess this explanation appears to us much more feasible than that which attributes the presence of the tree near the church to the necessity of keeping up “a good supply of bows in case of war.”

In the Essay on the Ivy, the Wanderer’s character as the champion of calumniated innocence is pleasingly exhibited. The Essay contains a masterly defence of this plant, which has frequently been wrongfully accused of injuring the tree upon which it grows, both by deriving nutriment from the supporting plant, like the dodder and other parasites, and by so closely entwining the branches as to prevent their growth. Mr. Waterton shows that it does neither the one nor the other.

“We live to learn. I was not sufficiently aware of the value of ivy for the protection of the feathered race, until I had seen the pheasant-preserve of the Grand Duke of Tuscany, in the year 1817. It is called the Cascini, and it is a kind of Hyde Park for the inhabitants of Florence in their evening recreations.

“At the grove of the Cascini, you see the ivy growing in all its lofty pride and beauty. As I gazed on its astonishing luxuriance, I could not help entertaining a high opinion of the person, be he alive or dead, through whose care and foresight such an effectual protection had been afforded to the wild birds of heaven, in the very midst of the ‘busy haunts of men.’ The trees in this ornamented grove are loaded with a profusion of ivy, from their lowest to their topmost branches; and although crowds of fashionable carriages were rolling along the road which surrounds this preserve, I saw our common pheasant roving through its walks, with a confidence little inferior to that of our own domestic poultry. As the evening closed in upon us, I observed multitudes of the smaller birds resorting to the ‘ivy-mantled’ trees, in order to enjoy the proffered convenience of nocturnal rest and safety.

“I have profited by what I saw in Tuscany, — for, on my return to my native place, I began the cultivation of ivy with an unsparing hand.

"There are two sorts of this ever-verdant plant. The one is denominated English, the other Irish ivy. Both are exceedingly graceful in their foliage; but the first is by far the better bearer of fruit. They will grow on any soil, save that of swamp. Whilst the plant is on the ground, you have only to cover its long runners with a little earth at intervals of four or five inches, and you will soon have an abundant supply of ivy for ornament; and for use, as far as the birds are concerned. This is a surer way of obtaining plants, than by cutting them at once from the climbing ivy.

"Ivy can only attain its greatest perfection through the intervention of foreign bodies. It travels onward in a lowly state upon the ground, until it reaches some inclined or perpendicular object, up which it ascends. In due time it then puts out lateral branches, and obtains a bole, as though it were a forest tree itself. Ivy derives no nutriment from the timber tree to which it adheres. It merely makes use of a tree or wall, as we ourselves do of a walking-stick, when old age or infirmities tell us that we cannot do without it. Should an ancient wall and ivy come in contact, they are of great assistance to each other. Dyer observed this on Grongar hill: —

‘Whose aged walls the ivy creeps,
And with her arms from falling keeps:
So, both a safety from the wind
In mutual dependence find.’

There can be no doubt as to the real source from whence ivy draws life and vigour: from the ground alone its maintenance proceeds. To be convinced of this, we have only to inspect it narrowly on a living tree, and then pay the same attention to it upon a dead one, or upon any stump deprived of vitality. Be our eye as keen as that of the lynx, we shall not be able to perceive that the one plant is more healthy, more vigorous, or more verdant than the other; and if we cut through the stock of the ivy in either situation, we shall see that its upper parts will wither and die, down to the place through which the knife has passed.

"Some few years ago, a tall sycamore tree stood on this island, in a row with four others. A remnant of its once fine bole still occupies the place which the tree adorned in the days of its prosperity. An unexpected appearance of fungus showed that all was not right within; and, ere long, a gale of wind cut the tree nearly in two, sending its head and all its branches (saving one), with a colony of young jackdaws, down into the lake below. The remaining portion of the tree, spared by the gale, put out new shoots from every part of its circumference. But scarcely had these vegetated for four succeeding summers, when another immense fungus made its appearance about two yards from the truncated top, and all vegetation ceased that year, down to the part where the fungus had come out. Below this, the trunk was still alive; but another fungus, of equal dimensions with the last, showed itself about five feet from the ground, and deprived the bole of all vegetation upwards.

"At length this sickly remnant of the sycamore tree received its final doom; for, last summer, a vast profusion of fungus pushed up its circular cakes even from below the surface of the ground; and on their coming to maturity all the living powers within this ill-treated tree expired. The bole now stands a dead and unproductive stump. Any day, a north-west wind, sweeping across the water, may lay it low for ever. Did the ivy, which I had planted at the base many years ago, depend upon this bole for succour, it would now be dead and withered; but, on the contrary, that remaining part of it, free from mutilation when the different portions of the tree fell down, is now in verdure, and in primest vigour; but as it has no longer an opportunity of creeping

upwards, on account of the misfortunes which have befallen the tree, it has assumed the form of a bush, with dense and widely spreading foliage.”—p. 68.

Mr. Waterton planted ivy at the foot of many trees, “and refused it to others in the immediate vicinity, and on the same soil,” but a minute inspection shows no difference in the appearance of the trees, all being equally healthy and flourishing. He continues : —

“Neither is this to be wondered at when we reflect that the ivy has its roots in the ground itself, and that it does not ascend in spiral progress round the bole and branches of the tree ; its leading shoot is perpendicular. Hence it is not in a condition to compress injuriously the expansive powers of the tree, proportionally stronger than its own. Thus we find that the ivy gradually gives way before them ; so that on removing the network (if it may be so called) which the ivy has formed on the bole of the tree, we find no indentations there.

“But woodbine acts the reverse of this. Its process is spiral, and it becomes, as it were, an immovable hoop on the plant which it has embraced. As the woodbine, by its circumambient position cannot give way, the plant must consequently protrude wherever it is not compressed, till at last the woodbine becomes nearly buried in it. Thus we account for the fantastic form of walking-sticks, which are often to be seen at the shop doors of curious venders. The spiral hollows in these sticks are always formed by the woodbine, never by the ivy.”—p. 73.

Before we conclude we must direct our readers’ attention to one thing which the author has much at heart. Mr. Waterton is exceedingly anxious that trial should be made of the Wourali poison, in cases of that dreadful and hitherto incurable malady — *hydrophobia*. He observes, that it is right to give the sufferer a chance of saving his life by the application of an untried agent of great power, which, even if it do not save life, would at least “render death calm and free from pain.” In cases of hydrophobia Mr. Waterton wishes that early application should be made, either to himself, at Walton Hall, Wakefield, Yorkshire ; or to Mr. Sibson, at the General Hospital, Nottingham. Such application “will be most punctually attended to.”

The few choice extracts we have culled from this delightful book, will, we trust, have the effect of inducing our readers to aid the benevolent design of the amiable Wanderer, by purchasing the volume itself. To its pages we would refer for much pleasing matter relative to the culture of the holly, the yew and the ivy ; gigantic raspberries, wild and cultivated, fourteen feet high ; quadrupeds, birds, scenery, adventures by sea and land, both pleasant and perillous ; — all these subjects, and numerous others, are graphically treated in the Essays, and in the ‘Continuation of the Autobiography of the Author’ thereunto prefixed. And further, we would express a hearty hope, that the accomplished author may be led to reconsider his determination, and so favour us, at no distant period, with more of his delightful Essays.

ART. CCXXXV.—*Varieties.*

502. *Note on Anthyllis vulneraria.* In reply to Mr. C. C. Babington's enquiry (Phytol. 1019) respecting my diadelphous state of *Anthyllis vulneraria*, I regret to state that all the specimens I have by me are monadelphous, or, as Mr. Babington observes, with one filament free at the base and summit. What became of the identical plants I examined in the fresh state, I know not. Mr. Ralfs, to whom I showed my plant before I sent the note for insertion in your pages (Phytol. 1000), desires me to say that on my mentioning the subject to him, he supposed me to be in error, or to have separated one filament by violence in dissection; but on examining a flower in my specimen, found it decidedly diadelphous.—*Alfred Greenwood; Chelmsford, June 26, 1844.*

503. *A few more words on the London Catalogue.* For reasons best known to himself, your respected correspondent, the attempted vindicator of the London Catalogue (Phytol. 1014), has carefully left untouched the main points of Mr. Sidebotham's letter or critique in the May No. (Id. 972). He may say, perhaps, that the details of the letter occupied no place in his attention while penning the defence: in fact he tells us at the outset, that he writes merely at the suggestion of the "editorial note" appended thereto. But standing forth as does Mr. Dennes, the champion of the new list, especially too as he condescends to notice *some part* of the letter, it was certainly to be expected that he would have entered at greater length upon its more important portions. To this, again, he may reply by repeating that Mr. Sidebotham's strictures were mostly founded on misapprehension, and therefore did not call for special answer. If it is a misapprehension that *Viola odorata* is marked in the list as an introduced plant, and that the numerous changes specified by Mr. Sidebotham, are meant to be literally interpreted, of course there is no need for explanation. But there can be no mistaking the facts which he has cited; and as the letter was simply one of enquiry, — as Mr. Sidebotham evidently had no other object in view than ascertaining the reasons for certain changes, I do hope next month's 'Phytologist' will be a satisfactory one in the matter of reply. To come however to particulars. Mr. Sidebotham never "accused" the London Society of making "extensive changes in nomenclature." He merely enquired why the new nomenclature introduced by the Edinburgh Catalogue and other publications, with good *stated* reasons, was not adhered to, instead of older names being in great measure restored. This circumstance is the more remarkable from the interest which the London list professes to take in the convenience of foreign botanists: inasmuch

as it rejects the very means which the Edinburgh Catalogue tells us is best calculated to promote it, namely, similarity of names ! By the way, when dethroning the usurper, *Carex irrigua*, and restoring the rightful appellation of *glauca*, why not carry out the principle, and print *humilis* instead of *clandestina* ? A far more important feature in the London Catalogue, is the change of rank forced upon certain species and varieties. Mr. Dennes does not even touch upon this : because the cases quoted by Mr. Sidebotham were “misapprehensions” I presume. I may be falling into the same error myself, nevertheless, I beg to enquire for information’s sake, why *Ranunculus fluitans* is only a variety, while *circinatus* is a species ? Why is *Lotus major* a species, and *hispidus* a variety ? Why are *Scirpus pungens*, *Rumex aquaticus*, *Juncus diffusus* and *Prunus avium* varieties only ? Why is *Senecio aquaticus* only a variety of *Jacobæa* ? Why is *Scrophularia Ehrharti* a var. of *nodosa* ? Why are *Potamogeton filiformis* and *zosteraceus* varieties, if *oblongus* and *plantagineus* are species ? Why separate *Lamium album* and *maculatum*, and combine *amplexicaule* and *intermedium*, the two former being more nearly allied than the two latter ? If *Glyceria Borreri* is to be referred to *distans*, why not both to *maritima* ? And lastly, if *Carex irrigua* is a variety, why not also *rariflora* ? Then again, we have several novelties in genera, which it would be desirable to have explained. For instance : — Why is *Armoracia* adopted, and not *Erucastrum* ? Why *Schoberia* and not *Halimus* ? Why are *Sinapis Monensis* and *S. Cheiranthus* placed in that genus, and not in *Brassica*, whilst *nigra*, *incana*, *muralis* and *tenuifolia* are also there ? As to the distinction of native and naturalized species, it appears to me that nothing could be more straightforward than Mr. Sidebotham’s enquiries. He did not so much seek to ascertain the motive for including or excluding certain species, as to elicit the *principle* or *plan* which had been followed in estimating our Flora, as elsewhere in re-adjusting nomenclature and relative rank. What is there in his letter that can be said to justify or even to call for Mr. Dennes’ ironical challenge ; especially when it so overflows with “misconceptions” ? May I ask why *Ononis reclinata* is not, while *Veronica Buxbaumii* is, a true native ? What difference is there between the claims of *Fedia auricula* and *F. carinata* and *dentata* ? Why give *Bupleurum falcatum*, *Salvia pratensis* and *Achillea tomentosa* as naturalized ? Has *Narcissus Pseudo-narcissus* any better right to be called wild than *Galanthus* ? It would be easy to ask fifty more such questions with reference to the London Catalogue. For the present I will leave it. Should we be favoured with another vindictory letter, I do hope it will bear upon

the points at issue rather than those minor features of the list, which, as no one would object to them, require no further remark.— *Leo. H. Grindon*; *Manchester, July 8, 1844.*

504. *Note on Anthyllis Vulneraria.* The observations in the two last numbers (Phytol. 1000 and 1019), have induced me to examine more closely the position of the stamens in *Anthyllis Vulneraria*. The plant grows close at hand in this neighbourhood, and in great abundance upon the cliffs and broken land; I have thus been enabled to consult numerous specimens. But as the result of my enquiries does not appear to agree with the remarks either of Mr. Greenwood or Mr. Babington, I give it in full, hoping some light may thereby be thrown on the subject. One stamen is *perfectly free* at the base and extremity, as in *Diadelphia*; and, in the young state of the plant is united to the other nine, as Mr. Babington observes, throughout most of its length: but generally [separates] *first* from the base, meeting and joining the left hand united filaments; and at the summit separating *last* from the filaments on the same side. I have found it adhering to the filaments on the *right* hand. This is the state of the stamens before the bursting of the anthers; after they have performed their function, the central stamen gradually separates from the right hand united filaments, continuing more or less adherent to those on the left. In some instances I have found the separation so decided that the single stamen could be removed without difficulty. When the seed is matured it forces its way through the slit, but owing to the shrinking and contraction of the stamens at their summit, a curious appearance is presented, the threadlike style being still confined at its extremity.— *F. Townsend*; *Steeplehill, Isle of Wight, July 21, 1844.*

505. *Note on Iris foetidissima with double flowers.* I beg to enclose you a double blossom of *Iris foetidissima*, which I found to-day growing near this town. I do not know whether it is sufficiently rare to merit a notice in a botanical journal; but never having seen a double *Iris*, either among cultivated or wild plants, I thought it might prove interesting to you. The plant was growing in a ditch, among some tufts of common ones, and had three or four bunches of flowers as double as those I now send; while upon the other plants the seed was nearly ripe.— *Robert Battersby, M.D.*; *Torquay, July 29, 1844.*

506. *Crepis biennis a Kentish Plant.* As I believe considerable doubt has been entertained with reference to the occurrence of *Crepis biennis* in Kent, the very different and distinct *Barkhausia taraxacifolia* having been repeatedly mistaken for it; I have much pleasure in communicating to the pages of 'The Phytologist,' a recently verified habitat for the true plant; my specimens of which, several of them

full four feet high, I had the good fortune to meet with in June last, at the hamlet of Bush by Cuxton, growing near the copse or shaw by the foot-path, just beyond and leading from the street of Bush, over the meadows and cornfields, towards Halling on the Medway. My plant is identical with authentic specimens collected near Cambridge a few seasons ago; and likewise with others from near Twycross, Leicestershire, kindly contributed to my herbarium by the Rev. Andrew Bloxam.—*Edward Edwards; Bexley Heath, Kent, August 6, 1844.*

507. *Silene Armeria*. Of this interesting plant, formerly noticed “on the banks of the Dee near Chester, and by the Ribble beyond Settle, Yorkshire,” but now no longer to be recognized in those localities, I obtained several good specimens last year from a very wild station near the Medway, towards Yalding, far from house or garden; and a few others this season, from the same spot, although (probably from the excessive drought with which we were so long visited), of dwarfish growth.—*Id.*

508. *Dianthus Armeria*. Mr. Babington marks this species as “rare,” (Manual, 40). It occurs in many places near here. It affects chalky and gravelly wastes and banks. I have noticed it in abundance this season at Crocking-hill, between St. Mary Cray and Farningham; at Stone, beyond Dartford; and in numberless other localities in the cross-country lanes between Farningham and Gravesend.—*Id.*

509. *Plants at Erith, 1844.* To the town-immured student, whose opportunities for botanical strolls, being few and far between, render of value the merest hint as to the locality of an interesting plant,—I beg to observe that I have noticed this season at Erith, growing about the marshes and wastes, within the shortest distance from the newly-erected pier, among numberless more common species,—*Polypogon Monspeliensis*, *Apera Spica-venti*, *Barkhausia taraxacifolia* (very abundant), *Petroselinum segetum*, *Onopordum Acanthium*, *Sisymbrium Sophia* and *Carduus tenuiflorus*; the three last named most plentiful and luxuriant.—*Id.*

510. *Plants at Eltham, 1844.* *Hutchinsia petræa* still retains its old haunts about the walls of the church-yard. I gathered fine specimens from thence in April last. This is the only recorded station for *Hutchinsia* near the metropolis; which, if the plant be truly indigenous here, is a very interesting fact. Misgivings have arisen among botanists as to the possible introduction of its near neighbour, *Centranthus calcitrapa*, which has located itself on the same and adjoining walls; but I am not aware that the truthfulness of this station for *Hutchinsia* has ever been questioned. *Centranthus calcitrapa* also

appeared this year, but certainly not in *abundance* (Phytol. 617). The old walls of Sherard's garden have been lately repaired, and the interstices cemented and otherwise filled up, to the probable eventual destruction of our plant. *Linaria purpurea* will doubtless in time be well established at Eltham: I could have collected upwards of a *wheelbarrow load* in July, all self sown about walls and wastes. *Oxalis Acetosella*, β . *purpurea* occurs, but very small and sparingly, in the woods near the Castle, towards Shooter's-hill.—*Id.*

511. *Note on Asplenium fontanum.* I was rather disappointed to find that the author of the 'History of the British Ferns' has not noticed *Asplenium fontanum* in the new edition of his work. On the 19th of last month I had the pleasure of receiving from Henry Shepherd, of the Liverpool Botanic Gardens, a single frond of a wild specimen, found by himself in the year 1826, on the rocks above Matlock. *Silvanus Thompson; Friends' School, York, 8th month 5, 1844.*

512. *Note on Mr. Gibson's Paper on Carices.* Although I fully agree with Mr. Gibson's observation on the value of scientific controversy (Phytol. 1038), when conducted in a proper spirit, and solely with a view to elicit truth, yet, as I see no utility in prolonging the discussion on the disputed *Carices*, unless some new facts could be advanced on either side of the question, I have not the slightest intention of replying to that gentleman's criticisms. But as I have been unfortunate enough to call forth some severe observations relative to the share which two of my esteemed correspondents have had in the matter under discussion, I deem it my duty to take up the cudgels in their behalf, and in one instance to expose something very like a *mistake*, to give it no harsher name, into which Mr. G. appears to have fallen. In the first place, in justice to Mr. Sidebotham, I must beg to state, that all the specimens of the disputed *Carex* which I have received from that gentleman, perfectly agree with those subsequently forwarded by Dr. Wood. And further, that in the course of my correspondence with Mr. S., I have not once had occasion to accuse him of carelessness or negligence in naming the specimens of plants with which he has favoured me. The mistake which he candidly confessed to Mr. Gibson, is one which any of us might have run into; and having been acknowledged in the confidence of a private letter, that confidence certainly ought not to have been violated. In the second place, with regard to the discovery of *Carex paradoxa* in Yorkshire, quoting Mr. Gibson's *own* words, I may remark, that what *he* has "said on the subject, would, *I think*, have been much better if it had been correct." Wishing to see when and by whom Mr.

Spruce had been anticipated in his discovery of that plant in Yorkshire, I carefully looked through Baines's 'Flora of Yorkshire' (to which Mr. Gibson refers us for this information), aye, examined it "from title-page to colophon," Addenda and all, but not a word could I find about *Carex paradoxa*. The only Carices named as growing in Ascham bogs, are *C. teretiuscula* and *C. Pseudo-cyperus*; and neither under these species, nor in any other part of the book, so far at least as I can see, is there anything to invalidate the claim of Mr. Spruce to the honor of having been the first to discover *C. paradoxa* in Yorkshire, and consequently in England.—*Geo. Luxford; August 4, 1844.*

513. *Note on Mr. Gibson's Remarks on Carices.* On receiving the last number of 'The Phytologist,' I was a little surprized to find that Mr. Gibson, in the exercise of his combative propensities, has thought fit to make an unprovoked attack upon me. As it is *just possible* that some one may be misled by it, I trouble you with a word of explanation. Mr. G. speaks of my sending the fruit of *Carex teretiuscula* to Mr. Babington, *by mistake*, instead of that of the supposed *C. pseudo-paradoxa*. The mistake was speedily discovered and as speedily corrected. Did Mr. Gibson never make a mistake? He says that *Carex paradoxa* was published in Baines's 'Flora of Yorkshire,' (Phytol. 1043); has any one else seen it there? He complains that I have sent *different* plants to several individuals as his *Carex pseudo-paradoxa*. The fact is, a somewhat variable plant grows at Seaman's Moss-pits; this plant Mr. Gibson says is a new one, and he calls it his *Carex pseudo-paradoxa*. The specimens sent by me to Mr. Luxford and Mr. King, and to which he alludes, *were all collected there*. If the plants will not square exactly with Mr. Gibson's description, it is their fault, not mine; of course, Mr. Gibson cannot be under *a mistake*. Mr. G. has no occasion to visit Seaman's Moss-pits to obtain his plant; it grows in several places in the immediate vicinity of Manchester, presenting variable appearances, which differ almost as much from each other, as from the *normal state* of *Carex teretiuscula*. — *Joseph Sidebotham; Manchester, August 6, 1844.*

514. *Note on Coronopus didyma.* It may not be uninteresting to the London readers of 'The Phytologist,' to know that the West of England plant, *Coronopus didyma*, occurs rather plentifully in Kew church-yard. I found it in that locality yesterday. It is probably a derivative from the Royal gardens, but it seems to have made itself quite at home, and promises to become a permanent addition to our Flora, if collectors will but show it a little indulgence. — *Edwd. Palmer, M.B.S.L.; David Place, Poplar, August 9, 1844.*

515. *Excursion of the Linnean Club.* The Linnean Club made its first excursion for the season, on Wednesday, the 3rd of July. Black Nottley church-yard, the burial place of the immortal Ray, being fixed on as the terminus of their pilgrimage, the members of the club left London by an early train, and arrived at the Witham station of the Eastern Counties railway about 10 o'clock; thence repairing to the White Hart at Witham, they sate down to a most substantial breakfast, which completely fortified them for their journey to Black Nottley, a distance of five miles, safely accomplished in a variety of carriages. Arrived at Black Nottley, they were met by Mr. Patterson, the present resident in the house once occupied by the illustrious naturalist in whose honour the excursion was projected. Mr. Patterson invited them to call on him, and gave them a very cordial reception, having provided an elegant and bountiful luncheon. When the members of the club felt sufficiently recruited by partaking of Mr. Patterson's good fare, they re-entered their carriages and returned to dine at the White Hart, at Witham, Mr. Forster, V.P.L.S., presiding. The dinner passed off with the utmost unanimity and good feeling; and the party returned to London by the half-past 6 o'clock train, and arrived at Shoreditch about 8, highly delighted with the day's occupations, and unanimously regretting that, owing to the arrangement of the trains, they could not have prolonged their stay to a later hour. There were present, the Lord Bishop of Norwich, P.L.S. (who was obliged to return to London in the early part of the day), Dr. Robert Brown, V.P.L.S., Edward Forster, Esq., V.P.L.S., Dr. Lankester, and Messrs. Yarrell, Bell, Harrison, Milne, White, Solly, Bennett, Taylor, Winterbottom, Anstead, Forbes, Clarkes (of Saffron Walden), Kippist and Van Voorst. — "*From our own Reporter.*"

516. *Note on the British Species of Cenanthe.* While at home for only two or three days, I have seen Mr. Babington's note on these plants (Phytol. 1060), and I trust that some words of comment upon it may be in time for a hint to collectors in September. Mr. B. says that he knows of localities for *Æ. pimpinelloides* only in three counties. I possess imperfect specimens from other localities than those named, and have gathered the same species on a hedge-bank in the Isle of Wight. But not having obtained any series sufficient to show both root and fruit from the same locality, I was unable to speak with confidence about them, before seeing the specimens from Mr. Lees; because, the other characters (taken from the leaves and involucre) were inadequate to separate my specimens of *Æ. pimpinelloides* from those received as *Æ. peucedanifolia*. On comparing the specimens

from Mr. Lees with my cultivated plant, which I knew to be the species, thus named from the *Unio Itineraria*, the existence of the same species in Britain seemed sufficiently certain; and I presume it likely to be found scattered through great part of England. I cannot say that I yet know exactly what Mr. Babington means by *Æ. Lachenalii*, and should not be surprised to find it identical, as a species, with the *Æ. peucedanifolia* of the same author. At all events, I have never seen British specimens with roots such as are described for the *Æ. Lachenalii*. But I have already explained, in the *London Journal of Botany*, (Feb. 1844), that the roots of *Æ. pimpinelloides*, and probably also those of "*Æ. peucedanifolia*" (so usually named by collectors) vary very much with age; appearing absolutely without tubercles or other enlargements at one season of the year, if the withered remains of those of the preceding summer be overlooked. I can now add that I have seen long, fusiform, fleshy, sessile roots (much like those of the *Dahlia* in miniature) on the true *Æ. pimpinelloides*, although the roots of that plant are usually slender, with an oval tubercle on each, an inch or two below the base of the flowering stem. I would here request collectors to obtain materials for determining whether really there are *two* other species in this country, in addition to *Æ. pimpinelloides*, which is quite clear and certain. Not having yet seen the papers of Mr. Ball and Mr. Babington, in the *Annals*, I am still unaware what evidence they adduce to establish the *two* other alleged species. The *Æ. peucedanifolia* of the *London Catalogue* includes both these two species, if two such exist. Until reading the note of Mr. Babington, I was fully under the impression that I had sent him, last winter, specimens of *Æ. pimpinelloides*, to illustrate the changes in the character of its root, with advancing age; at the same time informing him that the specimens were descendants from a plant collected in the Isle of Wight. — *Hewett C. Watson: Thames Ditton, August 15, 1844.*

517. *Yorkshire Locality for Asplenium fontanum.* Allow me to add to the already few habitats for that rare fern, *Asplenium fontanum*, *Smith*, three fronds of which I collected in Wharnccliffe wood, Yorkshire, in the year 1838, and which I now enclose for your inspection. I shall feel obliged by your returning them at your leisure, as they are all the *wild* specimens in my herbarium. I have this year, July, 1844, examined the locality, but have not been successful, not being able to find the precise spot where I gathered the enclosed. — *R. Milne Redhead; Cliffe Point, Broughton, Manchester, August 20, 1844.*

518. *Yorkshire Locality for Lastræa Thelypteris.* In July of the present year, I found two imperfect fronds of *Lastræa Thelypteris*, Presl, in a damp place in Wharnccliffe wood, a locality which Mr. Newman has not named, either in his County List of Yorkshire ferns (Phytol. 449), or in his late edition of the Ferns. I left the root, not wishing to destroy the habitat, and could not discover more than two fronds. A single plant of *Neottia Nidus-avis* grew near it.—*Id.*

519. *Reply to the Enquiry about Bartramia falcata*, Hook., Linn. Trans. &c. (Phytol. 1035). I have examined the original specimen, and consider it to be as distinct from *Bartramia calcarea*, Br. & Sch., as that species is from *B. fontana*. *B. uncinata* (Schwægr., Suppl. t. 57) may be a small variety of *B. calcarea*, but the locality (Guadeloupe and Martinique) renders this inference somewhat hazardous. *B. calcarea* grows on Hale Moss, near Altrincham, Cheshire, with both kinds of inflorescence, but without fruit: I have never seen it elsewhere. On the subject of *B. calcarea*, I must beg leave to say, that the unilateral direction of the leaves is not, in every species of moss, perhaps not even in this, a character to be safely depended upon. The seta in *Bartramia*, as in all acrocarpous genera, is essentially terminal. *Andræa nivalis* and *A. Rothii* are abundantly distinct species, but I cannot say as much for *Dicranum falcatum* and *D. Starkii*, which, on the Clova mountains, present many intermediate forms. The true calyptra of *Polytrichum* is the small scariose integument immediately in contact with the operculum. I have myself met with similar instances to that described by Mr. Edmonston. The apparent unity of the two calyptræ arises simply from mutual adhesion of the hairlike fibres which cover the true calyptra, and are inserted near its apex. Such an appearance may be expected whenever two perfect and contiguous archegonia are developed. I have a specimen of a *Bryum*, where two setæ, in similar circumstances, have become incorporated in their lower half, presenting the appearance of a forked fruit-stalk. With regard to the validity of the species retained or proposed as such by Bruch and Schimper, every one will form his own judgment; but I would suggest the propriety of studying the subject with diligence and attention, before any condemnation be passed upon their positions. This is the least mark of deference due to authors, who have the merit of having abolished so many spurious species, and of having reduced them to their proper rank of varieties. Whatever praise they are entitled to as *discriminators*, they have acquired it in consequence of having systematically applied those very characters which Mr. E. terms trivial. Perhaps these may find more

favour in his eyes on further acquaintance, or he will see it necessary to modify still more his encomium. Though I do not agree with Br. and Sch. on every point, I should hesitate to pronounce any such censure as that contained in Mr. E.'s remarks. Their work deserves to be studied, and should not be lightly criticised.—*W. Wilson ; Warrington, August 22, 1844.*

520. *Teucrium Botrys* found in Surrey. On Saturday last, the 17th instant, when in company with Mr. Wm. Bennett, I found several fine plants of *Teucrium Botrys*, in a wild stony locality, far from any house or garden, at the back of Box-hill, in Surrey.—*T. Ingall ; August 23, 1844.*

ART. CCXXXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, July 11, 1844.—This day the Society held its last meeting for the session, at the Royal Botanic Garden. Professor Graham in the chair.

The Treasurer read a paper on three genera of Desmidiæ, by Mr. John Ralfs, Penzance, viz., *Desmidium*, *Glæoprium* and *Schistochilum*.

Mr. James M'Nab read a portion of his Journal of a Tour in the United States and Canadas. In the last notice, Mr. M'Nab gave an account of the excursion from Albany to Troy, and thence to Stillwater, with notices of the most interesting plants observed during the journey thither; the present portion is chiefly confined to observations on the Botany of the same district. July 15.—In the early part of the day a severe thunder storm, accompanied with much rain, prevented the party from going abroad, but afforded an opportunity for arranging the specimens already collected. The storm having abated towards the afternoon, they were enabled to make a short excursion along the banks of the Hudson; few species, however, rewarded their exertions, the greater portion being out of flower; of those gathered, the most attractive were *Lobelia cardinalis* and *Habenaria fimbriata*, both in great abundance, the rich spikes of scarlet flowers of the former being admirably contrasted with the delicate purple blossoms of the latter: these two species formed the bulk of the flowering plants. Mixed with them, but more sparingly, *Habenaria lacera* and *Neottia cernua* occurred, with *Apocymum androsæmifolium*, the latter being the most abundant, and covered with a beautiful Coleopterous insect, which appeared to be peculiar to it. On the sloping banks of the

river, in thickets of sumachs, hazels, willows, &c., a gigantic species of Solomon's seal, *Polygonatum latifolium*, was observed; some of the specimens measured seven feet nine inches in height, with roots four inches in circumference. In several places the ground was so matted over with the stems of the poison oak, *Rhus toxicodendron*, that the hands of the party were much blistered in endeavouring to extricate themselves. July 16.—Having procured a canoe, the party proceeded about two miles down the river; during this short voyage they observed vast quantities of the shells of the fresh-water muscle, covering the little sandy hills by the river's edge, which had been collected by the musk-rats, with which the banks everywhere abound. At this place the rapidity of the stream, which had hitherto prevented the growth of aquatic plants, became much diminished, and they now observed large portions of its surface covered with *Nuphar Kalmiana* and *advena*, together with *Nymphaea rosea*, all beautifully in flower, and growing from a depth of eight feet. Overhanging the banks on both sides of the river, *Salix petiolaris* was in fine condition, its broad, lunate stipules adding much to the beauty and singularity of its appearance; here also, some fine specimens of the Virginian poplar (*Populus monilifera*) were seen, the largest stems measured were nine feet in circumference, and about seventy feet in height.

Leaving Stillwater, the party proceeded by canal to Whitehall. On the banks of the canal, and extending over the neglected fields, such quantities of the great mullein (*Verbascum Thapsus*) were observed, as to give the idea of its having been sown for a crop. The fact of its growing on the soil which had recently been thrown out of the canal, as well as on the sloping banks, convinced them that the seed must have lain buried in the earth, probably for a long series of years, and that, therefore, it is not likely, as has been generally supposed, that this plant has been introduced by the emigrants, but rather that it is indigenous to the country. The common St. John's wort (*Hypericum perforatum*) was also extremely abundant in this district, although sparingly seen before, and is described by Mr. M'Nab as one of the greatest evils the American farmer has to contend with, being supposed to be highly injurious to cattle, especially horses, causing blindness, which prevailed in many parts to a fearful extent.

On reaching Whitehall, situated at the southern extremity of Lake Champlain, two remarkable species of ferns were observed for the first time; namely, *Asplenium rhizophyllum* and *Aspidium bulbiferum*: the former growing on the surfaces of moist rocks, where it throws out its fronds, which take root at their extremities; while the latter bears

a number of small bulbs along the rachis, which, when mature, fall off and vegetate in the crevices of the rocks. Many other interesting plants were observed, but few of them in flower, with the exception of *Rubus spectabilis*, *Desmodium acuminatum* and *canadense*, and a few others.

Mr. M'Nab afterwards exhibited several specimens of gooseberries and currants, which had been kept for the last two years in glasses, containing water only, in which they had now matured their fruit for the second time; and it was remarkable that the gooseberries (*yellow amber*), and the red and white currants, were as highly flavoured as the same sorts under ordinary treatment.

Mr. Trevelyan exhibited specimens of some remarkable varieties of *Taraxacum officinale*, found on the sandy beach near Arbroath, and a curious variety of *Aspidium Filix-femina* from Braemar, having the frond branched at the extremity. The specimens were afterwards presented to the Society.

BOTANICAL SOCIETY OF LONDON.

August 2nd, 1844. — John Reynolds, Esq., Treasurer, in the chair. Mr. John Tatham, jun. and Mr. G. S. Gibson, presented specimens of a new British plant, *Spergula stricta*, Sw. (*Arenaria uliginosa*, Schl. and DeCand.; *Alsinantha stricta*, Fenzl and Reich.), discovered by them in June last (in company with Messrs. Jas. Backhouse, Jas. Backhouse, jun. and Silvanus Thompson), near the top of Widdy-bank Fell, Durham, about ten miles west of Middleton in Teesdale, and five from the High Force, (Phytol. 1066). Mrs. M. Stovin presented specimens of *Anemone ranunculoides*, found in a wood near Worksop, Nottinghamshire. Specimens from the same locality were presented in June, 1843, (Phytol. 655). Mrs. S. observes, "The more I see and hear of this plant in its Nottingham situation, the more am I convinced of its being wild."

Read, the concluding portion of Mr. Lees's elaborate paper "On the British fruticose species of *Rubus*;" and several specimens and drawings were exhibited in illustration of the views contained in the Essay.—*G. E. D.*

Errata in our last Number.

Page 1063, line 19, for 'two callosities at the base,' read 'less callosity at the base.'

Page 1064, line 12, for 'number of flowers on the Hieracia,' read 'number of flowers in the Hieracia.'

THE PHYTOLOGIST.

No. XLI.

OCTOBER, MDCCCXLIV.

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ART. CCXXXVII. — *Notes of a Botanical Ramble in Yorkshire &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

(Continued from p. 1069).

ON the 4th of 7th Month we finally quitted our quarters at the High Force, and sending our luggage round by the turnpike road, we crossed the moors separating Teesdale from the valley of the Lune. Crossing the foot-bridge below the fall, we took a southerly direction. Near a farm house just above the bridge, we gathered a few specimens of *Peucedanum Ostruthium*. For several miles we walked over high moor-land, presenting little variety: we noticed *Sedum villosum*, *Caltha palustris*, β . *minor*, and *Potamogeton plantagineus*. In the bed of a stream near the head of Lunedale, we found *Galium pusillum*, which we have not yet noticed in Teesdale. On reaching the road from Middleton to Brough, we followed it for several miles, till we came to the head of Swindale, a precipitous glen beautifully wooded on both sides. Having heard that *Asarum europæum* had been found in this neighbourhood, several years ago, we were very desirous of meeting with it, but our time was so limited, and the woods were so extensive, that we soon saw there was little probability of our finding it. We made our way along the bottom, over the rough rocky bed of a mountain torrent, and were repaid for our toil by discovering another locality for *Equisetum umbrosum*, the more interesting as it was in another county (Westmoreland). We also noticed *Hieracium murorum* and *Lawsoni*, and in the lower part of the glen we gathered *Equisetum hyemale* and *Epilobium angustifolium*, both of which were very abundant. Regaining the high road we passed through the little town of Brough, which is situated near the foot of a ragged limestone scar, and took the road for Kirkby Stephen, where we stopped that night.

The following morning we took the Hawes road, and entered the deep glen of Mallerstang, which is bounded on each side by lofty hills attaining to 2330 feet in height. Soon after leaving Kirkby Stephen, we found *Stachys ambigua* in small quantity. From the length of the journey before us, we had not time to examine the craggy sides of the

hills round Mallerstang, but we have little doubt that a botanist who could devote a few days to this district would be well repaid. At the upper end of the valley, the river (here forming the boundary between Yorkshire and Westmoreland) flows through a narrow limestone gorge occasionally not more than three or four feet wide, yet in some places nearly a hundred feet in depth. This gorge, from its depth and darkness, has acquired the name of Hell-gill. Turning towards the west, we ascended the southern ridge of Wild-boar Fell. It was covered in most places with ling, and we saw only *Vaccinium Oxycoccus* in addition to the plants previously noticed as occurring on hills of a similar character. The view from the summit was fine, embracing the greater part of Howgill Fells, the valley of the Lune, and Morecambe Bay in the distance. Descending the side of Swarthfell, we followed a mountain path for some time, and after passing over the foot of Bowfell, we came into the main road, about three miles from Sedbergh.

The following morning we set off to visit Cautley Spout, a waterfall on Howgill Fells about six miles from Sedbergh. On the wooded banks of the river we gathered *Stellaria nemorum* and *Circæa alpina*, *β. intermedia*. In the hedges we noticed *Rosa inodora* and *Mentha rubra*. Leaving the main road, we took a path which led to the foot of Cautley Spout, and commenced ascending the rocks by its side. This fall is composed of a series of beautiful cascades, which pour over the dark slate rocks from a considerable elevation. Howgill Fells are a cluster of round-topped slate mountains, covered in some parts with debris and short grass. Among the loose stones we noticed patches of *Allosorus crispus*, of greater size and luxuriance than any we had met with previously. On the rocks by the side of the fall we found *Alchemilla alpina* growing in great abundance; and higher up the mountain we were struck with the great profusion of *Lycopodium Selago* and *alpinum*, especially of the former. Here our party agreed to separate; two of them descended the eastern side, and on their way to Sedbergh gathered *Œnanthe crocata*, which was plentiful in a moist meadow. The others ascended to the summit, and were amply repaid by the magnificent prospect. In one direction, the southern part of Westmoreland, and the north of Lancashire lay like a map beneath, with the Cumberland mountains and Morecambe Bay in the back ground; while, in the extreme distance, the Isle of Man stretched like a line in the Irish sea. The lofty hills of the north-west of Yorkshire, with the beautiful vale of the Eden, terminated the view in another direction; and the grandeur of the whole was much increased by the heavy clouds which hung about the tops

of the adjacent mountains. On the descent of the Fells near Sedbergh, *Anchusa sempervirens* was growing abundantly.

The following evening we visited the ruins of Firbank chapel, a place of much interest to our party; and thence proceeded to Kirkby Lonsdale, where we arrived late. The next morning we carefully examined the rocks in the neighbourhood of the bridge for *Salix tenuifolia*, which we soon discovered; we also noticed *Saponaria officinalis* and *Catabrosa aquatica*. Passing along the road towards Casterton, we gathered *Geum intermedium*; and in a lane beyond, we found *Quercus sessiliflora*. On the mossy rocks overhanging Whelprig brook, we gathered *Hymenophyllum Wilsoni*, sparingly. We then crossed the moors in a southerly direction for some miles; but little was noticed till we reached the Ingleton road at Leck, where we found *Meconopsis Cambrica*. Shortly afterwards we had a fine view of Ingleborough, though its top was enveloped in mist. Nothing worthy of particular notice was seen, till we arrived at the Bridge Inn, near Ingleton, with the exception of a solitary plant of *Ceterach officinarum*. After an hour's refreshment we again set out to explore Helks wood, which was formerly known as one of the localities for *Cypripedium Calceolus*; it seems to have been exterminated here, as in most of its other localities. *Epipactis ensifolia* has also been almost exterminated in this wood. We think it well to remark here, that in almost every instance, our British Orchideæ are damaged, if not destroyed, by gathering the stem when in flower, with the *whole* of the leaves on, even though the root be left perfectly uninjured.

Helks-wood extends for upwards of a mile along the steep and often precipitous sides of Thornton-beck. Here we gathered *Rosa Doniana*, *Convallaria majalis*, *Polypodium calcareum*, and a *Salix* closely resembling *S. tenuifolia*. Near the end of the wood is a pretty waterfall called Thornton Force. Returning through Ingleton, we noticed *Senecio Saracenicus* and *Mentha citrata*; the former occupied a considerable space near the centre of the village.

The next day we started early for Weathercote-cave, between four and five miles distant. *Saxifraga aizoides* adorned the edges of many of the rills by the road-side, with its bright golden flowers. A rapid descent over masses of rock brings you to the bottom of this remarkable opening, which has rugged precipitous sides. From a dark fissure near the top, a body of water pours down and instantly disappears among the tumbled stones at the bottom, producing a very curious and striking effect. Near the entrance of this cave we noticed *Stellaria nemorum*, *Allium carinatum*, *Meconopsis Cambrica* and *Saxifraga*

Geum ; the last appears to have been originally planted there, but is now completely naturalized. After taking some refreshment at an inn in the vicinity, we commenced the ascent of Ingleborough. We crossed several extensive "limestone pavements," in the deep crevices of which we found *Actæa spicata*, *Lastræa rigida*, and some of the commoner ferns : on the grassy slope we noticed *Aira cristata*. The ascent of the mountain was steep but not difficult, and we were soon able to enjoy the fine bracing air and the extensive prospect from the summit. On the limestone rocks near the top we gathered *Saxifraga oppositifolia*, and below, on the millstone-grit, we saw *Sedum Rhodiola* in abundance, and after some search discovered *Poa alpina* in considerable quantity, though frequently growing in places scarcely accessible. H. C. Watson, in his 'Botanist's Guide,' remarks that he fears there is some error in the statement of this plant having been found on Ingleborough ; but it will no longer be a matter of doubt, and we were gratified in being able thus to confirm the correctness of this locality. Here we also found a *Poa*, somewhat resembling the Teesdale *Poa Parnellii*, and which we at first took to be that species, but more minute investigation leads us to believe that it is *P. nemoralis*, var. *glauca*.

Rapidly descending the easy slope of the mountain on the east side, we passed a deep circular chasm of curious character, called "Gaping Gill Hole." A mountain stream pours into this chasm, falling to an unknown depth. A stone thrown in, after rebounding from side to side for a considerable space of time, sounds at last as though it was hurled into a spacious subterranean cavern. The stream again emerges at a place about a mile distant, and probably several hundred feet below the level of the entrance. On reaching the village of Clapham, we found a chaise waiting to convey us to Settle, where we soon arrived, and were kindly entertained for some days at the residence of our friend and fellow-traveller, John Tatham, jun. The day following was very much one of rest, as regards bodily exercise : we however visited the beautifully wooded rock called Castlebar, at the foot of which the town is situated. Here we saw abundance of *Allium carinatum*. Though the evening proved stormy and somewhat wet, we visited Attermire crags, about two miles distant. The fog on the hills made it difficult to see our way, as well as to distinguish plants. Having however a good guide, we soon came to the place where *Lastræa rigida* grows abundantly ; we also noticed *Cardamine impatiens*, *Hieracium rigidum* and *Lawsoni*, and a single plant of *Polystichum Lonchitis*. This fern is very scarce here, only a few plants having been yet discovered among the tumbled limestone rocks. We were fully

occupied till late in the evening with pressing and changing our specimens (which now amounted to a considerable number), preparatory to starting, as we proposed, the next morning, for Malham-cove, Gordale and Arncliffe; the account of which, with the remainder of our tour, we shall reserve for a concluding paper.

(To be continued).

ART. CCXXXVIII.—*Descriptions of New Mosses and Lichens from the Australian Colonies.* Written for the Botanical Society of London, by THOMAS TAYLOR, Esq., M.D.*

THE bundle of Musci and Lichenes, from a large miscellaneous collection of the late Allan Cunningham, and placed at my disposal by the liberality of Mr. Hewett Watson,† contained several duplicates and but few species, and of these a very limited number that were new. I proceed to notice and describe the most interesting. *Hypnum arcuatum* of Hedwig, to be found in very few collections, occurred growing on the bark of trees, at Norfolk Island. From New Zealand was received *Hypnum flexile* of Hooker, which has not been sufficiently distinguished from *Leskea flexilis* of Hedwig. From the same place was sent *Leskea concinna*, *Hooker*, a variety, however, much smaller than that figured either in the ‘*Musci Exotici*’ or in Schwægrichen’s Supplement; the capsules, too, were not erect, but drooping from the bending of the upper part of the seta. From Norfolk Island came *Leptostomum erectum* of Brown, in the same specimens varying singularly in the size of the capsules. It was most pleasing to find gathered in New Zealand, *Dicranum vaginatum* of Hooker, described in the ‘*Musci Exotici*’ as coming from the elevated valleys of the Andes. Our common *Usnea plicata*, *Ach.*, occurred in New Zealand, and *Sticta crocata*, *Ach.*, with fine apothecia, so rare in Europe, was collected in an expedition to the interior of New South Wales, under Major Mitchell. I proceed to describe the new species.

Dicranum Menziesii, Tayl. Caule cæspitoso, erecto, subramoso: foliis undique imbricatis, erecto-patentibus, strictis, ex ovali basi longius tenuiterque setaceis, apice subserrulatis, uninerviis: capsula

* Read before the Society September 6, 1844.

† “The collection (consisting chiefly of vascular plants) was purchased at public auction, after the death of Mr. Cunningham; and it is very probable that some of the specimens had been mingled together, though from different localities.”—*H. C. W.*

lineari-oblonga, apophysata, ex basi erecta apice curvata; operculo inclinato, longius rostrato.

Norfolk Island, *Allan Cunningham*. I had received the same from Mr. Menzies from New Zealand, and named it after him, in 1814.

Tufts wide, pale yellowish-olive above, darker below. Stems $1\frac{1}{2}$ inch high, crowded, parallel, erect, branching principally near the base and then very sparingly. The leaves disposed to be heteromallous, but never circinate; the fruit scarcely exceeds the stems in height; in front of the capsule and at the base there is a projecting struma. The peristome is dark brown, the teeth strongly barred, unequally divided, the larger segment of one tooth always adjacent to the larger segment of the adjoining, which is not unusual in the genus. The calyptra is dimidiate, from a narrow base swelling considerably and then becoming subulate.

The figure of *Dicranum fasciatum* in Hedwig's Species, t. 28, is not unlike the present, differing, however, if we may judge from the description and plate, by the creeping stems, the nerveless leaves, whose summits are wider and shorter, the pedicels for the most part geminate and scarcely exerted, and the want of any struma to the capsule.

Bryum leptothecium, Tayl. Caule laxè cæspitoso, erecto, subramoso: foliis obovatis obliquè cuspidatis, marginatis, dentatis, in rosulam congestis: capsula curvata, lineari-oblonga; operculo conico, acuminulato.

Norfolk Island, *Allan Cunningham*. I had received this species from Mr. Menzies in 1814, collected in the same place.

Stems nearly 1 inch high, sending up from near the base of the perichætium a pair of annotinous shoots. The lower part of the stem is nearly naked, at the top and nearly at one point the leaves are clustered, and when moistened recurved and stellate; they are concave, carinate, somewhat oblique, with a sufficiently obvious margination; when dry each leaf is somewhat twisted in itself. The top of the pedicel and capsule both tend to form one curve; the capsule is usually remarkably slender. The inner peristome is split down for only about one fourth of its length, and has two filiform processes between each pair of perforated laciniae.

In *Bryum Billardierii*, *Schwæg.*, the leaves are immarginate and the capsule pendulous and oblong. From the Swan River *Bryum campylothecium*, *Tayl. MS.*, the present is distinct, by the want of long excurrent nerves to the leaves, and the slender capsules, which gradually increase in width towards the top.

Bartramia tenuis, Tayl. Caule cæspitoso, erecto, subsimplici, gracili: foliis laxis, erecto-patentibus, ex lata ovata basi lanceolato-subulatis, serrulatis, flexuosis, subsecundis: capsula rotundato-oblonga, curvato-cernua, striata, basi hinc gibba; operculo convexo, umbonato.

Norfolk Island, *Allan Cunningham*. I had received this, collected in 1826 by Richard Cunningham, in New Zealand.

Tufts wide, pale yellowish-green. Stems scarcely 1 inch high, very slender, reddish-brown. Leaves rather distant, with fine acuminate tops, variously bent. The capsule under a lens shows a reddish-brown reticulation on the surface, with cells rather large. Under each dark brown, lanceolate, transversely barred tooth of the outer peristome, lies a pale yellowish tooth of the inner peristome, which is bifid, but with segments unequal in size.

The present ranks near some of the smaller varieties of *Bartramia fontana*, *Swartz*, but then the leaves are longer, narrower, and with the denticulations less prominent.

Hypnum excavatum, Tayl. Caule decumbente, surculis erectis, fastigiatis ramosis: foliis imbricatis, patentibus, concavissimis, rotundatis, breviter apiculatis, integerrimis, basi binerviis: capsula ovata, inclinata; operculo conico, rostellato.

Five Islands, coast of New South Wales, *Allan Cunningham*. I had the same, collected in "Australia, 1823," by Fraser, through the kindness of Dr. R. K. Greville.

Tufts loose, very pale green. Stems either decumbent, with short branches; or the shoots erect, dendroid, with branches fascicled above. Leaves very round, in the dry state pitted in, when moistened, all equally tumid; they are set horizontally; they are shining from their great convexity. The capsules have a slight struma, are unequal in their sides, ovate, bent to one side. The pedicels are smooth: the perichætal leaves differing widely from the cauline in their lanceolato-acuminate shape.

The present may be readily known from its allied congener, *Hypnum Arbuscula*, *Hooker*, by the smaller size of all its parts, its more decumbent habit, and above all, by its more considerable although more slender pedicels.

Usnea scabrida, Tayl. Thallo erecto, scaberrimo, pallide cinereo-flavescenti, fibrillis confertissimis, patentibus, curvato-adscendentibus, subramosis: apotheciis demum planiusculis, ciliis confertis radiantibus margine dorsoque tectis; disco stramineo-albido, pulverulento.

Interior of New South Wales, *Allan Cunningham*. I had received the same from Mr. James Drummond, from Swan River.

Thallus from 1 to 2 inches high, fastigiate, very rough; apothecia larger than in any of the congeners. The fibrils of the thallus and the ciliæ of the apothecia are quite analogous, and are buds, which may be observed expanding into new thallus.

The *Usnea florida* of Acharius is known from the present, by its greater size and by the backs of its apothecia being quite smooth.

Parmelia tubularis, Tayl. Thallo orbiculari, stellato, albido, lobis subpinatifidis, linearibus, planiusculis, subtus inflatis, impresso-corrugatis, aterrimis, glabris: gemmis marginalibus, elongato-granulatis demùm linearibus: apotheciis substipitatis, concavis, disco castaneo lævi, margine subintegerrimis.

Interior of New South Wales, *Allan Cunningham*. I had the same from Van Diemen's Land, by favour of Dr. Balfour.

Thallus from 1 to 2 inches in diameter, white, with black edges; the linear lobes are sometimes convex. The apothecia sometimes in old age are half an inch in diameter, and then jagged at the edges and nearly plane at the disk.

This is one of a small tribe of the *Parmeliæ* with inflated lobes. It is easily known from the European *P. diatrype* and *P. physodes* both of Acharius, by the deeper division of the thallus into linear lobes to the very centre, while the lobes themselves are far more distinct.

THOS. TAYLOR.

ART. CCXXXIX. — *List of Plants observed in the dried-up bed of a Wear on Luddenden-brook, in July, 1844.* By S. KING, Esq.

THE following is a list of plants observed during the month of July, 1844, growing upon what is in this neighbourhood called *damstones* (a wear), situate in Luddenden-brook. It is a sort of novelty, many of the plants contained in it being strangers in the neighbourhood; and will at least show the dryness of the season, and the scarcity of water, in permitting the seeds to vegetate in such a place, which contains little more than a hundred yards of surface. It will also show, in some degree, the means whereby plants are frequently dispersed abroad to places foreign to them, as there is not the least doubt that many of them have escaped from the sweepings of the corn-mill which stands upon the stream a few hundred yards above, whither they had

been conveyed among the grain. Those marked thus * were not previously known to grow in this district. The list comprehends the species that grew on the fence-wall adjoining, though none but what a person standing in the water-course might reach. I have no doubt that the number of species would have greatly increased, had not a change taken place in the weather and brought on a flood, which quite obliterated my prolific bit of botanizing ground.

<i>Anemone nemorosa</i>	<i>Scabiosa succisa</i>	<i>Polygonum lapathifolium</i>
<i>Ranunculus acris</i>	<i>Tussilago Farfara</i>	<i>Persicaria</i>
repens	<i>Solidago Virgaurea</i>	aviculare
* <i>Papaver Rhœas</i>	* <i>Anthemis arvensis</i> , a sin-	<i>Convolvulus</i>
<i>Cardamine hirsuta</i>	gle plant	<i>Mercurialis perennis</i>
* <i>Erysimum cheiranthoides</i> ,	* <i>Pyrethrum inodorum</i>	<i>Ulmus montana</i>
plentiful.	* <i>Parthenium</i>	<i>Alnus glutinosa</i>
<i>Brassica Napus</i>	<i>Gnaphalium uliginosum</i>	<i>Juncus effusus</i>
<i>Sinapis arvensis</i>	<i>Senecio vulgaris</i>	conglomeratus
* <i>nigra</i>	* <i>Centaurea Cyanus</i> , a sin-	bufonius
<i>Lepidium campestre</i>	gle plant	<i>Luzula sylvatica</i>
<i>Viola canina</i>	<i>Lapsana communis</i>	<i>Carex remota</i>
<i>Silene inflata</i>	<i>Lactuca muralis</i>	<i>Anthoxanthum odoratum</i>
* <i>anglica</i> , a single plant	<i>Leontodon Taraxacum</i>	<i>Alopecurus pratensis</i>
* <i>Lychnis vespertina</i>	<i>Sonchus oleraceus</i>	geniculatus
<i>Sagina procumbens</i>	<i>Hieracium paludosum</i>	* <i>agrestis</i> , plentiful
<i>Spergula arvensis</i>	sabaudum	<i>Agrostis vulgaris</i>
<i>Stellaria nemorum</i>	<i>Achillæa Millefolium</i>	<i>Aira cæspitosa</i>
media	<i>Campanula rotundifolia</i>	<i>Holcus lanatus</i>
<i>uliginosa</i>	<i>Calluna vulgaris</i>	mollis
<i>Cerastium viscosum</i>	<i>Fraxinus excelsior</i>	<i>Poa trivialis</i>
<i>Geranium robertianum</i>	* <i>Convolvulus arvensis</i> , a	annua
<i>Lotus major</i>	single plant	<i>Dactylis glomerata</i>
<i>Vicia sepium</i>	<i>Digitalis purpurea</i>	<i>Festuca ovina</i>
* <i>Eryum tetraspermum</i> , plen-	<i>Veronica Chamædrys</i>	duriuscula
tiful	* <i>Acinos vulgaris</i> , a single	gigantea
* <i>hirsutum</i> , ditto	plant	<i>Bromus asper</i>
<i>Orobus tuberosus</i>	<i>Galeopsis Tetrahit</i>	* <i>commutatus</i>
<i>Spiræa Ulmaria</i>	<i>Galeobdolon luteum</i>	mollis
<i>Alchemilla arvensis</i>	<i>Stachys sylvatica</i>	<i>Brachypodium sylvaticum</i>
<i>Rubus fruticosus</i>	<i>Primula vulgaris</i>	<i>Triticum repens</i>
<i>Rosa canina</i>	<i>Plantago major</i>	<i>Lolium perenne</i>
<i>Cratægus Oxyacantha</i>	lanceolata	multiflorum, in toler-
<i>Pyrus aucuparia</i>	* <i>Chenopodium album</i>	able quantity
<i>Epilobium montanum</i>	<i>Atriplex patula</i>	temulentum, ditto
<i>Chrysosplenium oppositif.</i>	angustifolia	<i>Equisetum arvense</i>
<i>Angelica sylvestris</i>	<i>Rumex obtusifolius</i>	<i>Lastrea Filix-mas</i>
<i>Heracleum Sphondylium</i>	crispus	dilatata
<i>Anthriscus sylvestris</i>	acetosa	<i>Athyrium Filix-femina</i>
<i>Galium Aparine</i>		

Besides the above, there were also the cultivated wheat, oat, bean and potato. Some of the strangers occur in several other places down the brook, for half a mile together, along with **Lithospermum arvense*, **Festuca bromoides*, *Chrysanthemum segetum*, *Agrostemma Githago*, &c. &c.

Lane House, Luddenden,
near Halifax, Sep. 13, 1844.

SAML. KING.

ART. CCXL. — *Notes on some Queries about the 'London Catalogue of British Plants.'* Communicated by G. E. DENNES, Esq., Hon. Sec. Bot. Soc. London.

IN 'The Phytologist' for the current month (Phytol. 1077), a letter appears from the pen of Mr. Grindon, in which many queries are proposed to me, touching the reasons why certain names are used in the London Catalogue, for species which are designated by other names in the Edinburgh Catalogue, — why certain plants are entered as species and others as varieties, — why some are marked indigenous and others introduced? In reply to the letter, I can only say that it is manifestly impossible to answer such questions in detail, without writing enough to fill whole Nos. of 'The Phytologist.' The many pages written about the names and distinctions of *Œnanthe pimpinelloides*, *Carex paradoxa*, *Primula elatior*, *Hieracium sylvaticum*, and their respectively allied species or varieties, afford satisfactory proofs that *reasons* for names and distinctions are rather too lengthy affairs to be entered upon by scores at once.

It has already been stated (Phytol. 1015) that, almost without exception, the names employed in the London Catalogue are adopted from writers of authority; and, in most instances, they are names which have been very generally in use among botanical writers. Those who require reasons for such names, ought to seek them in the published works of the authors from whom they are taken. Those who object to the names so sanctioned, ought to show reasons against them, instead of idly calling for reasons why other parties have not rejected them.

Both Mr. Sidebotham and Mr. Grindon seem to have written under a strange fancy, that the compilers of the London Catalogue were in some way bound to have adopted exactly the same names as were employed by the compilers of the Edinburgh Catalogue. But if the names of this latter Catalogue had been implicitly adopted, other objectors would just as reasonably have asked, why a mere list of names

was followed, in preference to the best descriptive works on British Botany, such as those of Smith, Hooker, or Babington? Not only do the Floras of Smith and Hooker (the highest authorities who have written Floras of Britain) differ from the Edinburgh Catalogue in many names, — but even, in several instances, the names of the Edinburgh Catalogue are again changed and made different in Mr. Babington's 'Manual of British Botany.' When we thus find the *same* author using one set of names in 1841 (Edinb. Cat.), and other names in 1843 (Manual), there can be no great ground for surprize or censure in the circumstance of two *different* Societies being still less uniform in their nomenclature.

Mutatis mutandis, similar observations may be extended to the distinctions between species and varieties, between native and naturalized plants. In very many instances they can be only the opinions of individuals, drawn from imperfect evidence. It is mere mis-use of terms to represent Mr. Sidebotham as endeavouring to "elicit the principle or plan" which was followed in distinguishing native and naturalized plants. There could be no "principle" — that is, general rule: each case must be decided by itself, on the best attainable evidence. One species (say, for example, *Impatiens fulva*) is excluded because known to have been introduced from a distant country; another (*Corydalis lutea*) because its localities are all near houses, or in spots to which the plant is likely to have been carried by the hand of man; another (*Linum usitatissimum*) as being a species long in ordinary cultivation, and not permanent in its localities. Thus, there is no common test applicable — no general rule — no "principle" to be followed. Indeed, it was one of Mr. Sidebotham's own errors to assume (not ask for) a principle, when he stated the number of local Floras as the test between native and naturalized species.

It is to be regretted that writers who seek controversy, are so prone to assume and assert things without the warranty of fact in support. It was wrong in Mr. Sidebotham to make the incorrect statement just adverted to. It is equally wrong in Mr. Grindon to connect the words "extensive changes in nomenclature" with the name of Mr. Sidebotham. Those words occurred in the editorial note (Phytol. 974), but not in Mr. Sidebotham's letter; and they were repeated by myself only in a paragraph which expressly related to the "editorial wishes for uniformity of nomenclature," (Phytol. 1015). By connecting these words with Mr. Sidebotham's name, Mr. Grindon is enabled to give a point blank contradiction to a charge — never made!

Thus far I have replied to such portions of Mr. Grindon's letter as

can be supposed to possess any general bearing or interest. I do this in my capacity of Secretary to the Botanical Society; though I cannot go so far as to allow that any office-bearer of the Society should feel called on to answer queries like this: — “if *Carex irrigua* is a variety, why not also *rariflora*?”

I have now only to add further, that any competent botanist, engaged in writing on the plants of Britain, will find no difficulty in obtaining such information as can be afforded, about any species or variety included in the London Catalogue,—provided his inquiries be addressed to me through the post-office. There seems no good reason for such questions being addressed to the readers of ‘The Phytologist’ generally: it looks too like mere display or notoriety-seeking.

G. E. DENNES.

ART. CCXLI. — *Notice of Presl's ‘Hymenophyllaceæ.’*

(Continued from p. 1059).

The characters given to the Hymenophylloideæ are these.

“Sorus in dentibus aut laciniis frondis apicalis immersus vel his consumtis subterminalis exsertus. Indusium e duabus laminis frondis divisis et alteratis constructum; hæ in varia altitudine marginibus connatæ indusium ad medium usque ad basim bifidum efformant. Receptaculum indusio longius vel æquilongum vel brevius, aut filiforme in parte superiore capsuliferum inferne nudum, aut apice globoso-incrassatum ibidem capsuliferum inferneque nudum, aut cylindricum aut obovato- vel lineari-clavatum undique capsuliferum.”—p. 26.

It has already been pointed out (Phytol. 1047), that the main distinction between the Trichomanoideæ and Hymenophylloideæ, is founded on the structure of the involucre; this part, in the latter tribe, being for the most part composed of two distinct valves, which are separated nearly to the base. A perusal of the characters above cited will show that the receptacle affords little or no assistance, since it is occasionally longer and occasionally shorter than the involucre, and that its form is as variable as its length. Indeed the author seems rather to have adopted this dichotomous division in compliment to his numerous predecessors, who, following Sir J. E. Smith, have treated the groups as genera, than to be impressed with any idea of its value or importance. Passages clearly evincing his views on this subject, are of frequent occurrence; for instance, in describing *Leptocionium*, he observes, “It is a genus intermediate between the Trichomanoideæ and Hymenophylloideæ, possessing the receptacle of the former and

the involucre of the latter." We can scarcely avoid feeling regret that an author entertaining such views should hesitate to carry them out, and should bow to mere authority. We consider it impossible for any one, whatever his skill, to define for the satisfaction of others the genera or tribes known as *Trichomanes* and *Hymenophyllum*; and we hold it needful either to adhere, with Linnæus, to the genus *Trichomanes*, or to adopt the generic subdivisions to their fullest extent. For if we divide the *Hymenophyllaceæ* into sections of any kind, more than two such sections will be required; the *Didymoglossæ*, for instance, will occupy a rank at least equal to the *Hymenophylloideæ*. A modern writer on Ferns has an apposite passage on this subject; and it seems not a little remarkable, that a work, so exactly supplying the desideratum there pointed out, should be so soon afterwards in the hands of botanists.*

GENUS, *LEPTOCIONIUM*, Presl.

"Venæ pinnatæ, simplices, prominulæ, libere desinentes. Sorus terminalis, sessilis. Indusium usque fere ad basim bipartitum suborbiculatum, laciniis planis appressis margine æqualiter serrato-ciliatis. Receptaculum cylindricum, obtusum, undique capsuliferum, junius indusio æquilongum, adultum duplo longius nudum cicatriculis oblongis spiralibus notatum. Capsulæ lenticulares, sessiles.

"Rhizoma repens, filiforme, tenue, hinc inde paleis piliformibus patentibus adspersum, radicibus flexuosis pilis (radiculis) horizontalibus vestitis. Frondes sparsæ. Stipes semi-uni-pollicaris, teres, flexuosus, fusco-ater, aut glaber aut hinc inde paleis piliformibus adspersus. Frondis limbus semi-sesquipollicaris, lanceolatus, acumina-tus, basi acutus, margine pilis bipartitis seu dicranoideis crassiusculis rigidis acutissi-

* *Hymenophyllum* "was separated by Smith as a genus in the fifth vol. of the *Turin Transactions*, and the name has been adopted by nearly all subsequent botanists, a strong proof of the weight of Smith's authority, for even now, when generic subdivision has extended to so great a length, we have no new genera founded on such imaginary differences as those which separate *Hymenophyllum* from *Trichomanes*. In my endeavours to draw a line between these genera, I have been totally unsuccessful: if we regard the exerted receptacle of the one, or the bivalved involucre of the other, the only conclusion at which we can arrive is this—that those species with the longest receptacles at present stand in *Trichomanes*, those with the most distinctly bivalved involucres in *Hymenophyllum*. These, however, are mere questions of degree, and are quite insufficient to guide the botanist who — without a prior knowledge of a plant — seeks, by means of books, to ascertain its generic and specific names. It must not, however, be understood that I object to the subdivision of the Linnean genus *Trichomanes*; so far from this, I trust the time is not far distant when some competent botanist shall rearrange the entire group, pointing out characters that admit of no dispute, and leading us on to a far more accurate knowledge of these beautiful plants, than we can hope to glean from any works yet before the public." — Newman's *British Ferns*, p. 323.

mis ciliatus, profunde pinnatifidus, laciniis alternis oblongo-lanceolatis obtusis inciso-dentatis, dentibus obtusis apice serratis, serraturis remotis acutissimis subciliiferis. Parenchyma e cellulis hexagonis regularibus constructum, tenerum, transparens, in una pagina pilis bipartitis supra descriptis adpersum. Rachis prominula, flexuosa, fusca. Venæ pinnatim exorientes, prominulæ, fuscæ, simplices, apice libero obtuso desinentes rachideque in una pagina pilis bipartitis supra descriptis longioribus tamen et subinde ad ortum venarum tripartitis vestitæ, in altera glabræ. Sorus in dente infimo superiore laciniarum terminalis et illum absorbens vel obliterans, sessilis, parvus. Indusium fronde paululum tenerius, e cellulis illa multo minoribus constructum, suborbiculatum, usque fere ad basim bipartitum, laciniis planis adpressis a medio usque ad apicem sinuato-æqualiter serratis, serraturis acutissimis in ciliam abeuntibus. Receptaculum cylindricum, obtusum, rigidum, rectum, junius indusio æquilongum undique capsuliferum, adultum indusio duplo longius denudatum et cicatriculis ovali-oblongis spiralliter ambientibus (a capsulis delapsis) instructum, ima basi parumper incrassatum. Capsulæ lenticulares, sessiles. Sporæ tetraëdrice, verruculoso-punctulatæ.”—p. 27.

1. *L. dicranotrichum*, *Presl*.

This truly beautiful and remarkable species was brought from Chili by Mr. Cuming, and its description is comprised in that of the genus. A second species, *Hymenophyllum fucoides* of Swartz, a native of Jamaica is doubtfully referred to the same genus.

Genus, MYRMECOSTYLUM, *Presl*.

“Venæ prominulæ, pinnatim ramosæ, venulis simplicibus liberis. Sorus terminalis, sessilis. Indusium ovale, utrinque convexum, profunde bifidum, laciniis conniventibus apice serrulato-ciliatis aut integris. Receptaculum indusio dimidio longius, cylindricum, rigidulum, a medio ad apicem pulvinis capsularum crebre verrucosum ibique capsuliferum. Capsulæ turbinatæ, sessiles. Rhizoma repens, teres, paleis piliformibus patentissimis vestitum, radicibus flexuosis radiculis piliformibus copiosis obsitis. Frons hygroscopica, stipitata, oblonga, utrinque acuta, glaberrima, bipinnata, pinnis oblongo-lanceolatis subpetiolulatis, pinnulis pinnatifidis, laciniis linearibus in typica et in chilensi specie sinuato-serrato-ciliatis undulatisque, in specie antillana integerrimis vel apice emarginatis. Stipes bi-tripollicaris, in *M. tortuoso* alatus, ala serrato-ciliata crispata versus basim decrescente, in *M. clavato* nudus teres filiformis. Raches fuscæ, in *M. tortuoso* alata, ala sinuato-serrato-ciliata undulato-crispata, in *M. clavato* teretes nudæ. Costæ prominulæ, fuscæ, flexuosæ. Venæ prominulæ, fuscæ, pinnatim ramosæ, venulis simplicibus apice libero desinentibus. Parenchyma transparens, e cellulis hexagonoideis constructum. Sori in laciniis frondis terminales, sessiles, satis magni. Indusium lineam longum, ovale, utrinque convexum, usque supra basim bifidum, laciniis conniventibus, in *M. tortuoso* apice serrulato — longe ciliatis, in *M. clavato* integris emarginatis margine planis aut undulatis repandisve. Receptaculum cylindricum, obtusum, rigidulum, rectum aut incurvum, junius indusio brevius aut æquilongum basi nudum et versus apicem capsuliferum, in *M. tortuoso* adultum indusio dimidio longius rarissime illo fere duplo longius et apicem versus pulvinis verrucæformibus capsularum spiraliter dispositis scabris crebrisque instructum, in *M. clavato* conforme, sed pulvinis his minoribus. Capsulæ lenticulari-turbinatæ, sessiles.”—p. 28.

1. *M. tortuosum*. Trich. *tortuosum*, *Banks, in Herb. Jacq.* Hymen. *tortuosum*, *Hook. et Grev.*

This species, on which the genus is founded, was collected by Sir Joseph Banks in New Zealand, and a specimen, labelled *Trichomanes tortuosum*, was communicated by that illustrious naturalist to M. Jacquin, and is now in the herbarium of the Imperial Museum at Vienna.

2. *M?* *dichotomum*. Hymen. *dichotomum*, *Cav.*

3. *M. clavatum*. Hymen. *clavatum*, *Sw.*

Genus, *PTYCHOPHYLLUM*, *Presl.*

“Costa teres. Venæ pinnatæ, alternæ, distantes, ramosæ, venulisque apice libero desinentes. Sorus in lacinia frondis terminalis, compressus, sessilis. Indusium ad duas tertias partes bifidum, laciniis ovatis obtusis, altera integra, altera bifida. Receptaculum lineari-cylindricum basi incrassatum nudum, apicem versus pulvinis verrucæformibus spiraliter dispositis provisum. Capsulæ lenticulares, verrucis receptaculi suboblique affixæ. Rhizoma repens, filiforme, ramosum, radicibusque sparsis paleaceo-pilosum. Frons stipitata, hygroscopica, tenera, transparent, pinnulis secundariis pinnatifidis integrisque, laciniis inæqualiter acutiuscule serrulatis longitudinaliter plicatis, cæterum glaberrimis, rachibus margine foliaceo in dentes acuminatos diviso provis. Stipes uni- tri-pollicaris, teres, bifarie paleaceus vel potius margine frondis utriusque in dentes acuminatos paleæformibus dissoluto instructus. Costæ tenues, prominulæ, stipiteque rachibusque atro-fuscæ. Venæ venulæque teres, steriles apice libero desinentes. Parenchyma e cellulis hexagonoideis constructum. Sori in superiori frondis parte obvenientes, in laciniis terminales, sessiles, compresso-plani, mediocres. Indusium usque ad duas tertias partes longitudinis bifidum, laciniis ovatis obtusis conniventibus æqualibus altera usque ad duas tertias partes longitudinis bifida, laciniis æqualibus sinu acutiusculo divisis, altera integra. Receptaculum indusio æquilongum, rectiusculum, filiforme, teres, basi incrassatum inferneque cicatricibus linearibus longitudinaliter spiralibus, a medio usque ad apicem pulvinis verrucæformibus crebris patentissimis spiraliter ordinatis apice truncatis suborbiculatis et coloratis instructum. Capsulæ in verrucis seu potius pulvinis sessiles, oblique affixæ, lenticulares.”—p. 29.

1. *P. plicatum*. Hymen. *plicatum*, *Kaulf.* Hymen. *magellanicum*, *Willd. herb.*

This species was brought from Chili by Chamisso and Cuming. Presl observes that although it possesses the general habit of the Hymenophyllaceæ, it is totally different in the structure of the fruit. He considers that by means of the genera *Leptocionium*, *Myrmecostylum* and *Ptychophyllum*, a complete and continuous series is formed of the *Trichomanoideæ* and *Hymenophylloideæ*.

Genus, *HYMENOPHYLLUM*.

“Costa teres, prominula. Venæ alternæ, distantes, ut plurimum ramosæ, sæpius utrinque pinnatæ, in pinnis dimidiatis in latere inferiori deficientes, steriles venulisque apice libero obtuso desinentes. Sorus in lacinia terminalis, aut suborbiculatus aut sæpissime ovalis, utrinque convexus, sessilis aut subpedicellatus. Indusium bilobum, bifidum aut bipartitum, lobis laciniisve demum patentibus. Capsulæ lenticulares, ses-

siles, receptaculo clavato obtuso undique affixæ. Rhizoma repens, tenuissimum, filiforme, ramosum, radicibus alternis radiculisque pilis paleæformibus copiosissimis vestitum. Frondes stipitatae, hygrometricæ, teneræ vel tenerimæ, sparsæ, transparentes, pinnatim divisæ, rarius pilis a basi furcatis vestitæ, sæpius sinuato-serrulatae, serraturis subinde pilos simplices gerentibus, sæpius glaberrimæ, paginis conformibus. Stipes variæ longitudinis, teres, subinde marginato-alatus. Raches teretes, utrinque prominulæ, sæpe margine foliaceo alatae. Costæ teretes, tenues, prominulæ. Venæ pinnatim exorientes, alternæ, ramosæ, non prominulæ, venulisque apice libero obtuso aut acutiusculo desinentes, in quibusdam speciebus ob pinnas dimidiatas i. e. latere pinnarum inferiore deficiente solummodo in latere pinnarum superiore obvenientes. Parenchyma e cellulis hexagonoideis constitutum, tenerum vel tenerimum. Sorus in lacinia frondis terminalis, sæpissimæ laciniam ipsam efficiens, sessilis aut subpedicellatus, solitarius (in qualibet lacinia), mediocris, rarius parvus, in *H.* minimo solummodo in lacinia terminali obveniens et inde in fronde terminalis. Indusium e cellulis hexagonoideis constitutum, fronde tenerius, aut sub-orbiculatum usque ad medium bilobum (in *Cycloglosso*), aut ovale ad duas tertias vel tres quartas partes bifidum (in *Euhymenophyllo* et *Craspedophyllo*), aut usque ad basim bipartitum (in *Sphærodio*), lobis planiusculis conniventibus (in *Cycloglosso*), aut laciniiis convexis conniventibus (in *Euhymenophyllo*), aut partitionibus valde convexis conchæformibus (sic dictis inflatis) demum patentissimis (in *Sphærodio*). Receptaculum undique capsulis obsitum, capsulis delapsis cicatricibus linearibus spiraliter ambientibus instructum, in *Cycloglossis* et *Euhymenophyllis* lineari-clavatum indusio æquilongum, in *Sphærodio* oblongo-clavatum demum indusio longius vel sublongius. Capsulæ lenticulares, sessiles, supra planæ et simpliciter cellulosæ, in *Sphærodio* superne excentrice stellato-radiatæ. Sporæ tetraëdricæ, punctis minutis verruculatæ.”—p. 29.

This genus is divided into four sections, as under.

* SPHÆRODIUM.

1. *H. Wilsoni*, *Hook.* (*H. tunbridgense*, *Schk. Fil. t.* 135, *d.*)
2. *H. Meyeri*, *Presl.* “*H. glaberrimum*, fronde oblonga obtusa pinnata, pinnis subpetiolulatis dimidiatis superne profundissime pinnatifidis, laciniiis linearibus obtusis sinuato-acuteque serrulatis, soris sessilibus subglobosis, indusio integerrimo, receptaculo incluso, stipite rachique tereti nuda, petiolulo superne alato inferne nudo tereti. *H. tunbridgense*, b. *Drège, Pl. Cap. Exs.*
“Habitat in Capite Bonæ Spei, ubi legit *clar. Drège*.”—p. 50.
3. *H. antarcticum*, *Presl.* “*H. glaberrimum*, fronde oblonga obtusa bipinnata, pinnis subsessilibus oblongo-lanceolatis, pinnulis oblongo-lanceolatis obtusis sinuato-acuteque serrulatis decurrentibus, soris pedicellatis obovato-subglobosis, indusio integerrimo aut obsolete denticulato receptaculum æquante, stipite rachibusque alatis. *H. tunbridgense*, *Sieb. Syn. Fil. n.* 134. *Flora Mixta, n.* 254.
“Habitat in Nova Hollandia ad Port Jackson, ubi legit *Sieber*.”—p. 50.
4. *H. Menziesii*, *Presl.* “*H. glaberrimum*, fronde lanceolata bipinnata, pinnis petiolulatis dimidiatis, pinnulis linearibus acutis mucronato-sinuato-serrulatis, soris pedicellatis obovato-subglobosis, receptaculo indusium integerrimum æquante, rachibus superne alatis, inferne stipiteque teretibus nudis. *H. tunbridgense*, *Jacq. Herb. in Herb. Mus. Bot. Imp. Vien.*
“Habitat in Staatenland, ubi legit *Menzies*.”—p. 51.

** EUHYMENOPHYLLUM.

5. *H. valvatum*, *Hook. et Grev.*

6. *H. blepharodes*, *Presl.* “*H. fronde oblongo-lanceolata angustato-acuminata pinnata, pinnis oppositis alternisque petiolulatis lanceolatis obtusis profunde pinnatifidis, laciniis linearibus obtusis emarginatis mucronato-serrulatis, soris sessilibus ovatis obtusis, indusii laciniis apice ciliato-serratis demum patentissimis receptaculo longioribus, rachi superne alata, inferne stipiteque tereti costisque pilis simplicibus furcatisque aspersa.*

“*Habitat in insula Martinica, unde attulit Kohaut.*”—p. 51.

7. *H. minimum*, *Less. et Rich.*

8. *H. tunbridgense*, *Sw.*

9. *H. asperulum*, *Kunze.*

10. *H. cupressiforme*, *Labill.*

11. *H. Drègeanum*, *Presl.* “*H. glaberrimum, fronde lanceolata angustato-acuminata bipinnata, pinnis petiolulatis, pinnulis lanceolatis obtusis profunde pinnatifidis, laciniis inferioribus cuneatis bilobis, superioribus integris lobisque linearibus obtusis emarginatis argute serrulatis, rachibus petiolulisque alatis, primaria basi stipiteque filiformi nuda, soris pedicellatis, indusio obovato receptaculum superante apice inæqualiter denticulato. H. tunbridgense, a. Drège, Pl. Cap. Exs.*

“*Habitat ad Promontorium Bonæ Spei, ubi legit clar. Drège.*”—p. 52.

12. *H. peruvianum*, *Hook. et Grev.*

13. *H. seselifolium*, *Presl.* “*H. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis petiolulatis alternis distantibus lanceolatis acutis, pinnulis primariis lanceolatis acutis, secundariis cuneato-lanceolatis trifidis, laciniis emarginatis bilobisve alisque rachidum stipitisque ciliato-serrulatis, soris sessilibus, indusii laciniis ovato-lanceolatis obtusis integerrimis receptaculo longioribus.*

“*Habitat in Chile, ubi collegit clar. Cuming.*”—p. 52.

14. *H. multifidum*, *Sw.* *Trichomanes multifidum*, *Forst.*

15. *H. unilaterale*, *Bory.*

16. *H. serra*, *Presl.* “*H. glaberrimum, fronde lanceolata acuta bipinnata, pinnis petiolulatis dimidiatis latere inferiore acuminato-serrulatis, pinnulis linearibus emarginatis rachibusque petiolulisque acuminato-serrulatis, infimis pinnarum inferiorum bifidis, soris sessilibus, indusio lanceolato obtuso integerrimo usque ad basim bifido receptaculum superante, stipite filiformi rachisque basi nudo.*

“*Habitat in Chile, ubi collegit clar. Cuming.*”—p. 53.

17. *H. pectinatum*, *Cav.*

18. *H. secundum*, *Hook. et Grev.*

19. *H. asplenioides*, *Sw.*

20. *H. fumaroides*, *Bory.*

21. *H. Thunbergii*, *Eckl. Pl. Cap. Un. It. n. 92.* *H. tunbridgense*, *Kunze, Acot. Afr. p. 74, partim.*

22. *H. flabellatum*, *Labill.*

23. *H. nitens*, *Brown.*

24. *H. fraternum*, *Presl.* “*H. glaberrimum, fronde oblongo-lanceolata acuta tripinnata, pinnis petiolulatis ovatis obtusis, pinnulis primariis cuneato-lanceolatis obtusis, secundariis cuneatis bifidis, laciniis linearibus obtusis integerrimis, rachibus petiolulis stipitisque apice alatis, soris sessilibus, indusii laciniis ovatis obtusis inæqualiter obtuseque denticulatis receptaculum crassum superantibus.*

"Habitat in Jamaica; inventor ignotus."—p. 54.

25. *H. Poeppigianum*, *Presl*. "*H. glaberrimum*, fronde lineari-lanceolata angustato-acuminata tripinnata, pinnis petiolulatis oblongis obtusis, pinnulis primariis ovato-lanceolatis obtusis, secundariis tri-bifidis integrisque laciniisque late linearibus obtusis emarginatis integerrimis, rachibus petiolulis stipitisque apice alatis, soris sessilibus, indusii usque ad basim bifidi laciniis ovato-subrotundis integerrimis receptaculum superantibus. *H. clavatum*, *Poeppig, Fil. Exs. Kunze, Fil. Poepp. in Linnæa, IX. p. 109.*

"Habitat in Peruvia ad Pampayaco, ubi collegit clar. Poeppig."—p. 54.

26. *H. Jalappense*, *Schlecht*.

27. *H. Grevilleanum*. *H. polyanthos*, *Hook. et Grev.*

28. *H. polyanthos*, *Sw.* *H. millefolium*, *Schlecht. Mathews, Pl. Pers. Exs. n. 1790.*

29. *H. emarginatum*, *Sw.*

30. *H. ? javanicum*, *Spr.* *H. crispum*, *Nees et Blume.*

31. *H. dædalum*, *Blume.*

32. *H. paniculiflorum*, *Presl*. "*H. glaberrimum*, fronde ovata obtusa, tripinnata, pinnis petiolulatis ovatis obtusis, pinnulis primariis lanceolatis obtusis, secundariis linearibus indivisis obsolete emarginatis integerrimis, stipite basi tereti apice rachibusque alato, soris in apice frondis paniculatis, indusii usque fere ad basim bifidi laciniis orbiculatis receptaculum superantibus. *Cuming, Pl. Philip. Exs. n. 214.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. H. Cuming."—p. 55.

*** CYCLOGLOSSUM.

33. *H. cæspitosum*, *Gaudich. in Frey.*

34. *H. Cumingii*, *Presl*. "*H. glaberrimum*, fronde lineari pinnata, pinnis cuneiformibus obtusis pinnatifidis, superioribus dimidiatis, laciniis lato-linearibus obtusis emarginatis, stipite filiformi nudo, rachi alata, soris immersis, indusii ad medium bifidi laciniis orbiculatis integerrimis receptaculo æquilongis.

"Habitat in Chile, ubi legit clar. H. Cuming."—p. 56.

35. *H. semibivalve*, *Hook. et Grev.*

36. *H. decurrens*, *Sw.*

a. *Jacquinianum*, fronde lineari-lanceolata, *Jacq. Coll. 2, t. 2, f. 1, 2.*

β. *Sieberianum*, fronde ovata, *Trich. clavatum*, *Sieb. Syn. Fil. n. 141, partim.*

37. *H. Kohautianum*, *Presl*. "*H. glaberrimum*, fronde lineari-lanceolata acuta bipinnata basi angustata, pinnis petiolulatis alternis lanceolatis obtusis, pinnulis cuneato-lanceolatis obtusis pinnatifidis, laciniis linearibus emarginatis alisque rachidum integerrimis, rachibus petiolulisque alatis, stipite filiformi nudo, soris semiimmersis, indusio usque ad medium bifido, laciniis obovato-orbiculatis integerrimis receptaculo æquilongis. *Trichomanes clavatum*, *Sieb. Fl. Mart. n. 250. Syn. Fil. n. 141, partim.*

"Habitat in Insula Martinica, ubi legit Kohaut."—p. 56.

38. *H. Schomburghii*. *Hymenophyllum*, *Schomb. Pl. Guj. Exs. n. 509.*

**** CRASPEDPHYLLUM.

39. *H. marginatum*, *Hook. et Grev.*

(To be continued).

ART. CCXLII. — *Additional Notes on Suffolk Botany.*

By W. L. NOTCUTT, Esq.

Having on a former occasion communicated some particulars of an excursion I made in Suffolk last year (Phytol. 823), and having, this summer, revisited that part of the country, perhaps a few additional observations may not be altogether unacceptable. My visit, however, was paid at a period which, though one of the most pleasant in all the year, is not the most fertile for the botanist; namely, the latter part of May. I again observed most of the plants noticed in my last communication, though many of them were not in flower. In addition to these, I saw in the meadows bordering the river Gipping, a great abundance of *Orchis latifolia* and *Saxifraga granulata*, the former being especially luxuriant; while in the river itself was *Potamogeton lucens*, and at its sides and in the adjoining ditches, plenty of *Cicuta virosa*. In a pond in the meadows between the Gipping and the Bramford road, was a large patch of *Acorus Calamus*, just coming into flower. *Cenanthe fistulosa* grows in the neighbouring ditches, and *Menyanthes trifoliata* in the boggy parts of the meadow.

Turritis glabra I found in two other localities besides the one mentioned in my former paper. On the Belstead road I found it, though sparingly, from Stoke-hills to the place where the Belsted-brook crosses the road: at this latter spot *Galium cruciatum* abounds, and *Malva moschata* grows in small quantity. In the fields beyond, *Sedum Telephium* adorns the hedge-bank, and in a hedge a little further on, I found a tree of *Quercus Cerris*, most likely planted. I met with *Turritis glabra* again in a cornfield on the way to Downham-reach woods: it was just at the top of the hill above Greenwich-farm, at the bottom of which, on the river side, is Hog-island, a locality for *Statice rariflora*. This is a remarkably pleasant walk, and by no means devoid of botanical interest. In the neighbouring cornfields we meet with *Papaver Argemone*, and at the end of them emerge into Gainsborough's lane, so named after the celebrated Suffolk painter, Gainsborough. Some of the views in this lane afford the most beautiful combination of river and wood scenery imaginable. At its termination are Downham-reach woods, which deserve, and I doubt not would richly repay, a close and careful investigation. Here was *Orchis mascula* in profusion, and just in its prime, and such magnificent specimens I certainly never beheld before. By the side of one of the ditches on the edge of the wood, I found, after a little search, plenty

of *Chrysosplenium oppositifolium*; and by another near it, *Cardamine amara*.

At the back of Brook's hall, near Ipswich, is a hilly broom-field: here I found *Orobanche major*, which has maintained this station for a great number of years; it was, however, in very small quantity this year. I have not seen it elsewhere near Ipswich, though the broom, on which it commonly fixes its roots, is very abundant on Stoke-hill, near Greenwich-farm, Cauldwell-hall, &c. In the meadow behind Brook's hall grows *Epilobium palustre*, and in the pond in its front I used to find a *Ceratophyllum*, I suppose *demersum*, but this year it was not to be seen. Near this spot is a lane which leads by the Suffolk hospital and back of the barracks to the top of Globe-lane and in which I found *Geranium pyrenaicum* and *Smyrnium Olusatrum* in great abundance. *Gagea lutea*, a very rare plant in this part of England, I believe, may be found in Waller's grove, a copse on the left hand side of the London road, about a mile from Ipswich, on that side of the copse which faces Stoke-hills.

Botany being only a secondary object with me in this trip, I was unable to devote so much time to it as I could have wished, and could only spare one day to a search for plants at Felixtow and its neighbourhood. I found nothing more than I have recorded in my last account, excepting a *Poa*, which was growing in moderate plenty on the sands which form the point of Harwich-harbour by Landguard-fort; it appears to me to be *P. bulbosa*, though it differs in one or two points.

During my stay at Ipswich, I had the opportunity of looking over the herbarium of a friend and relative, Mr. John Notcutt, now deceased. He had resided for a long time in Ipswich; and being an ardent lover of Botany, had formed an intimate acquaintance with the plants of the neighbourhood, of which his collection consisted, for there appeared to be scarcely a specimen from any other place. Thinking a notice of some of the localities might be interesting, I transcribe those of a few specimens which were given me by the gentleman in whose hands the collection now is. With the exception of the two last, they are all in the immediate vicinity of Ipswich.

Pulmonaria angustifolia. Between Whitton and Bramford. I carefully examined this station without being able to detect the plant; but as the distance between the two villages is a mile or a mile and a half, and the plant was probably past flowering, it might easily have been overlooked. I possess the specimen, which was gathered in 1818.

Sambucus Ebulus. In the hedge at the N.E. corner of the second

field N.E. of the gardener's house, between Brook's hall and Whitton, the second inclosure E. of the Norwich road, 1818.

Avena fatua. Borders of fields between Ipswich and Whitton. — Fields between Fonnereau's grove and the Henley road, 1819.

Hieracium Sabaudum. Roadside between Belstead and Bentley. In the hedge on the N. side of the Bucklesham road, between the entrance of the lane leading to Foxhall, and some huts; and in the lane on the E. side: also on the hedge-bank E. of the small plantation by the lane, 1818.

Lathyrus Aphaca. On the N. border of a field between Ipswich and Whitton, and adjoining the road on the W. side, with *L. Nissolia*. (There are specimens of the young seedlings with the real leaves: the stipules to the first pair are semi-sagittate: but the next pair of stipules are of the usual form).

Stellaria uliginosa. S. corner of Lower Bolton, by Diary-lane. — At the top of Spring-head lane, St. Helen's, with *Chrysosplenium oppositifolium*.

Mentha sylvestris. On a wet bank in the London road, just past Crane-hall, at the foot of the hill. N.E. side of the first cornfield S.E. of Brook's hall, adjoining an osier-ground.

Bromus giganteus. Back of Fonnereau's grove.

Erysimum cheiranthoides. In the meadow N. of Handford bridge, on the W. side of the river, within five or six feet of the wall near the bridge. Corn-fields by the side of the Orwell, between Hog island and Downham-reach, in the second field from Hog island.

Urtica pilulifera. Thorpe.

Frankenia lœvis. Salt-marshes at Walberswick, near Southwold.

Besides these, there were fine specimens of *Arnoseris pusilla*, and several other interesting plants, the localities of which I had not time to transcribe. On the sheet which contained the specimens of *Statice Limonium*, there were two specimens of the normal form of that plant, and two of *S. rariflora*, which were marked, "*S. Limonium*, var. ?" the locality was Hog island, near the cliff, Ipswich. My father has since visited the spot, and finds both *S. Limonium* and *S. rariflora* growing there, the latter is most plentiful. I may also add that my father has detected *Reseda alba* in a hedge at Felixtow, this summer, from which locality he has sent me several fine specimens.

W. L. NOTCUTT.

Fareham, Sept. 5, 1844.

ART. CCXLIII.—*Varieties.*

521. *Note on Lastræa Thelypteris.* Having seen a notice of *Lastræa Thelypteris* being found in Yorkshire, in small quantity, I beg leave to state that it is very abundant in two places in this vicinity,—Ascham-bog and Heslington-field.—*Jas. Backhouse, jun.; York, 3rd of 9th Month, 1844.*

522. *Note on a locality for Anthemis maritima.* On the pebbly part of the ballast-ground near Hartlepool, I lately gathered a single specimen of *Anthemis maritima*. I believe the only recorded *English* locality is “Sea-coast at Sunderland.” *Atriplex rosea* and *prostrata* ? are abundant in the neighbourhood of Hartlepool, and *A. marina* occurs more sparingly.—*Id.*

523. *Note on a Surrey locality for Ceterach officinarum.* I believe that at present there is no habitat recorded for *Ceterach officinarum* in the county of Surrey ; I may therefore perhaps be allowed to point out to your readers “a local habitation” for this fern within the county. On looking over a collection of ferns, made by a young lady in this neighbourhood, I was much gratified by seeing a frond of *Ceterach*, which was stated to have been taken from a wall at Haslemere. Feeling a desire to verify the habitat, I mentioned the circumstance to my friend Mr. Salmon ; and a few days afterwards (April 18, 1844), we together visited the spot—an old wall on the south side of Cow-street—where we found from thirty to forty plants. Of these we contented ourselves with a very few specimens. Mr. Salmon sent a notice of this habitat to Mr. Newman, hoping it might appear in the second edition of the *British Ferns* ; his note, however, arrived too late, the last part of the *British Ferns* being published a very few days subsequently.—*Henry Bull ; Godalming, Surrey, September 13, 1844.*

524. *Notes on the change of Colour in the Flowers of the Hydrangea.* Having paid particular attention to the common *Hydrangea (H. hortensis)* for several years, and during that time having made a variety of experiments with a view of ascertaining the probable cause of the frequent variation of colour so prevalent in that species, I offer the following remarks as the result of my observations. They will, I think, show the fallacy of the statements which have been recorded in various periodicals &c., of changing the large pink heads of blossoms into the fine blue colour, either by growing the plant in a particular soil (some persons say peat or bog soil), or by the addition of chemical agents to the soil : as well as that the blue colour is by no means permanent. When my attention was first drawn to the subject some

years ago, where I was then living, several very large Hydrangeas were growing in the open borders of a flower-garden, the soil being of various kinds. One plant, growing in a border of stiff tenacious clay, produced beautiful heads of a bright *pink* colour, while another by its side had every head of blossoms of a fine *blue*; and in the same border was a plant bearing blossoms of pink and blue intermixed, and of as fine a shade of colour as on the separate plants. The other border was a deep surface-soil of peat or bog-earth. The plants were of the same character in this as in the before-named border, and produced the same results, the blossoms being wholly pink, wholly blue, and mixed as before. I have plants here which are growing in clay; and last summer (1843) they bloomed pink and blue heads distinctly on the same plant. In the autumn of 1842 I took cuttings from plants, the pink and blue separately; in the following spring, when they flowered, every head of blossom was pink; the soil varied from peat to a stiff loam. In the autumn of 1843 I repeated my experiment, taking my cuttings again distinct, and potting some of them in pure loam, others in peat soil, others in equal parts of loam and leaf soil, others again in equal parts of loam and peat. No difference was perceptible this summer in the blossoms of those cuttings taken from plants with pink or blue flowers, with one exception, which was that one of the cuttings from the blue, produced *pale* blue flowers; the soil it was grown in was pure loam. A slight tinge of blue appeared in a few of the flowers on other plants, on cuttings taken from the pink kind as well as the other. Such has been the result of careful experiments, and I feel satisfied, as a practical cultivator, that the difference of colour in these plants is of a thoroughly sportive character, and will always be attended with uncertain results. For I would ask, if the soil causes the change of colour, why should it appear on the same plant, as well as on a plant when growing in soil of a decidedly opposite nature? I should be happy to hear of experiments on these plants made by some other correspondents.—*Jno. R. Henness; Dor-king, September 14, 1844.*

525. *Note on Anagallis cærulea.* I beg likewise to mention having succeeded in raising *Anagallis cærulea* a second time from seeds of *A. arvensis*. The first time was in 1838, when, wishing to test the two plants as to their being distinct species, I had sown seeds of *A. arvensis* in a border, from which was produced one plant of *cærulea*. And again, in the present season, having sown some seed, I have obtained the same result; and I now think with Mr. Grindon (*Phytol.* 130), that *A. cærulea* is nothing more than a variety of *A. arvensis*. *Id.*

526. *Note on the Bulbs of Achimenes pedunculata.* In the autumn of 1843, I observed a singular phenomenon displayed by the small bulbs attached to the stem of *Achimenes pedunculata*; they are formed principally in the axils of the leaves. I had gathered a number of the bulbs into a small pan, and having occasion to move them afterwards, I was surprized at the apparently spontaneous irritability exhibited by the bulbs, which continued for some seconds expanding and collapsing with great rapidity. I enclose a small quantity of the bulbs for your inspection, and should be happy to supply any of your correspondents on application.—*Id.*

[On opening the box containing the bulbs (which resemble mulberries in miniature) when first received from Mr. Henness, we were very much surprized at the lively movement pervading the whole mass into which the bulbs had been compressed in their journey by post. They resembled a host of small beetles suddenly released from confinement in a small space, and bent on making the most of their newly acquired liberty.—*Ed.*]

527. *Note on Equisetum Telmateia.* Having seen a discussion in some former numbers (*Phytol.* 588, 618, 621, 648 and 649), respecting *Equisetum Telmateia*, as to the degree of moisture of the spot it usually grows in, I thought it might interest some to state that I have observed it growing commonly in corn-fields in the neighbourhood of Stock and Galleywood common near here. I was surprized to find the plant in a locality so generally occupied by *E. arvense*; probably the fields required landitching, though I could not perceive that they were particularly wet; they certainly were not low in situation. I have never seen this *Equisetum* growing in the water, but two other stations for it near here are much wetter than the preceding. *Alfred Greenwood; Chelmsford, September, 1844.*

ART. CCXLIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

September 6, 1844.—John Reynolds, Esq., Treasurer, in the chair. Mr. T. Ingall presented a specimen of *Teucrium Botrys*, found in August last in a stony field at the back of Box-hill, between Brockham and the upper part of Headley-lane, (*Phytol.* 1086).

Read, — Descriptions of some new Mosses and Lichens from the Australian Colonies; by Thomas Taylor, Esq., M.D., (*Phytol.* 1093).

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ART. CCXLV. — *On the British Species of Sphagnum.*

By W. WILSON, Esq.

THE investigation of this difficult genus is more properly a task for one who has uninterrupted leisure : but since the subject has recently come under my special notice, I am induced to present the result of my enquiries to your readers, reserving the details for the ‘Manual of British Bryology,’ which it is my intention ere long to publish.

Mr. Valentine has long ago pointed out, in the ‘Muscologia Nottinghamiensis,’ a good diagnostic for *S. cymbifolium*, *Dill.* (*S. obtusifolium*, *Hook. & Tayl.*), residing in the cellules which constitute the cortical layer of the ramulus. If these are carefully examined with a good lens, they will be found to have a very curious lining of spiral fibres coating the whole interior surface, except where the circular pores are found. This lining, and the circular pores, are analogous to those of the cellules which compose the leaves.

S. compactum (Bridel), found in Oxton-bog by Mr. Valentine, has the cellules of the ramulus quite destitute of spiral lining. The leaves are different in shape from those of *S. cymbifolium*, *ovate-oblong*, *the upper portion almost subulate, and the apex always præmorsodentate.* The leaves of *S. cymbifolium* vary in shape from roundish to elliptical, generally boat-shaped, sometimes recurved in the upper half, when they greatly resemble those of *S. squarrosum*, but may always be known by their very concave and entire apices, and by the prominent cells at the back of the leaf, just below the apex. *S. compactum* and *S. cymbifolium* are the only species known to me which have the margin of the leaf minutely denticulate (especially towards the apex): all the other species have the margin entire and cartilaginous, most evidently so in *S. cuspidatum*, *Ehrh.*

S. squarrosum (Pers.), has the leaves recurved and very acute at the apex : it can only be confounded with the squarrose variety of *S. cymbifolium*.

S. contortum (Schultz) is a difficult species, as I judge from the circumstance of its having been described in the ‘Bryologia Germanica,’ “*foliis ovato-acuminatis falcato-subsecundis nitidis, ramulis recurvato-contortis.*” The name itself seems to be unhappy ; since it

is applicable only to one, and that not a general form of the species. Indeed it is only by means of specimens apparently authentic in Mougeot and Nestler's 'Stirpes Crypt. Voges. Rhen. No. 807,' that I am enabled to identify this moss. If I am right in my conclusions, the more general state of this species is one which does not present any appearance of contorted and recurved ramuli, nor any unilateral or falcate direction of the leaves. It often assumes a large size, with very large leaves, when growing in water, and in this state has been called *S. laxifolium* by Mr. Valentine (though he ultimately regarded it as only a variety of *S. acutifolium*), and has not long ago been reported as a new species gathered in Devonshire by the Rev. C. A. Johns. *S. contortum* is readily known from *S. cymbifolium* and *S. compactum*, by the ovate-acute leaves, which are nevertheless præmorse at the apex. An excellent additional character is found in the *cellules of the main stem being disposed in only one layer*, in which respect it differs from all known species, except *S. subsecundum*. Found in Cheshire and Nottinghamshire.

S. subsecundum (Nees ab Esenb.), has not yet been found in Britain, but I think it right to mention it here, and the more so, because in the collection of Mougeot and Nestler, it has been confounded with *S. contortum*. The leaves of *S. subsecundum* are somewhat unilateral, ovate, acute, *not præmorse at the apex, very concave*, but otherwise not readily distinguishable from *S. contortum*, with which they agree in their very small cellules. It may be that *S. subsecundum* is only a variety of *S. contortum*, and if I mistake not, *S. acutifolium* is equally variable in reference to the apex of the leaf, or otherwise two species are confounded under that name.

S. molluscum (Bridel), is a beautiful little soft species, found about Warrington and in Wales, many years ago, by myself; more recently by Mr. Spruce in Yorkshire, and by Mr. Sidebotham in Oxton-bog. This has small, ovate, concave, acute leaves, scarcely præmorse at the apex, and the cellules large, if compared with *S. subsecundum* and *S. contortum*. It is beautifully characterised by the peculiar shape of the cellules of the ramuli; each of these cells (unlike the cylindrical ones of the other species) is curved at top so as to stand out from the ramulus, and the circular orifice at the extremity is thus rendered very conspicuous.

S. acutifolium (Ehrh.), is known by the ovate-lanceolate acute leaves, which, when dry, have the margins unchanged. The leaves in one variety are very regularly packed in five rows. It is very common.

S. cuspidatum (Ehrh.) has the cartilaginous margins of the leaves reflexed and wavy when dry ; the shape of the leaf is narrower than in *S. acutifolium* ; often very long and tapering in the aquatic state named *S. plumosum*. A less common species than the last.

Besides these characters, by which the species may be known, there are others consisting in the different form of the perichæatial leaves, whereby *S. squarrosus*, *cymbifolium* and *acutifolium* are very obviously separated from each other : the others I have but partially examined. Differential characters are found also in the texture of the walls of the capsule.

It is hoped that these hints may serve as a satisfactory reply to Mr. Sidebotham's request for information upon the subject, (*Phytol.* 871). I shall feel obliged by the communication of specimens of any *Sphagnum* which cannot be recognized as belonging to the species here enumerated as British. It is highly probable that additional species will be discovered, especially *S. tenellum*, *Pers.*, now that the subject is rendered accessible to the readers of 'The Phytologist.'

W. WILSON.

Warrington, September 27, 1844.

ART. CCXLVI. — *Notice of Presl's 'Hymenophyllaceæ.'*

(Concluded from p. 1106).

Genus, SPHÆROCIONIUM, *Presl.*

"Costa teres, prominula. Venæ pinnatæ, alternæ, distantes, simplices ramosæque, steriles venulisque conformibus apice liberodesinentes. Sorus in lacinia frondis terminalis, compresso-planus, sessilis. Indusium bifidum, laciniis ovato-orbiculatis obtusis, appressis, demum patentibus. Receptaculum indusio brevius, inferne cylindricum nudum, apice globoso-incrassatum et capsuliferum. Capsulæ lenticulares, oblique stipitatæ. Rhizoma repens, tenuiter filiforme, ramosum, sæpe præter radices alternas filiformes simplices ramosasque radiculis paleæformibus piliformibus copiosissimis instructum. Frondes stipitatæ, hygroskopicæ, teneræ vel tenerimæ, sparsæ, plus minus in rhizomate distantes, transparentes, pinnatim divisæ, aut pilis apice stellatim ramosis (umbraculiformibus) præsertim in costis venis margineque ornata, aut sinuato-serrulata, serraturis subinde pilis simplicibus superatis, aut glaberrimæ, paginis conformibus. Stipes variæ longitudinis, teres. Rachis teretes, utrinque prominulæ, sæpe una cum stipite margine foliaceo alata. Costæ teretes, prominulæ. Venæ pinnatim exorientes, alternæ, simplices aut sæpe ramosæ, internæ venulisque apice libero desinentes. Parenchyma e cellulis hexagonoideis constitutum, tenerum. Sorus in dente laciniae frondis terminalis, solitarius, sessilis, compresso-planus vel disco convexiusculus, parvus. Indusium e laminis frondis disjunctis formatum, fronde multo tenerius, e cel-

lulis hexagonoideis constitutum, usque ad tres quartas vel quatuor quintas partes longitudinis bifidum, laciniis ovato-rotundatis aut orbiculatis aut obcordatis primo adpressis deinde patentibus, in compluribus speciebus margine vel pone marginem pilis apice stellatim ramosis ciliatis vel hirsutis, in aliis speciebus serratis, in aliis serrato-ciliatis, in aliis integerrimis. Receptaculum indusio semper brevius, inferne cylindricum et nudum, apice globoso-vel subgloboso-incrassatum spongiosum et ibidem capsuliferum, capsulis delapsis irregulariter cicatrisatum. Capsulæ lenticulares, margine undique annulo elastico circumdatæ, plus minus stipitatæ, stipite e prolongatione excentrica faciei capsulæ inferioris constructo, plus minus longo, continuo, nunquam septis transversis vel articulationibus quemadmodum in Filicaceis insignito. Sporæ tetraëdricæ, verruculis minutis punctulatæ.”—p. 33.

This genus contains, besides seven new species, a great number of those which have usually been placed under *Hymenophyllum*; and the author arranges them under three subdivisions, which he names *Stellata*, *Pilosa* and *Glabra*: he speaks of the great difficulty of accomplishing a subdivision satisfactory to himself, and acknowledges the probability of better diagnostics being hereafter found: the names of the divisions now employed sufficiently show the characters he has selected.

1. *Stellata*.

1. *S. hirsutum*. Hymen. *hirsutum*, *Sw.* excluso synonymo *Plumier*. *H. attenuatum*, *Beyrich*, *Herb. partim*.

2. *S. sericeum*. Hymen. *sericeum*, *Sw.*

3. *S. tomentosum*. Hymen. *tomentosum*, *Kunze*, *Fil. Poeppig*.

4. *S. interruptum*. Hymen. *interruptum*, *Kunze*.

5. *S. aureum*, *Presl*. “*S. pilis apice stellatim ramosis tomentosum flavescens, fronde lineari elongata pinnata utrinque obtusa, pinnis contiguis sessilibus lanceolatis acuminatis inciso-dentatis basi superiore truncatis subauriculatis inferiore cuneatis, rachi tomentoso-hirsutissima, stipite tereti glabro, soris immersis, indusio ad medium bifido, laciniis orbiculatis. Hymenophyllum aureum, Beyrich, Herb. H. sericeum, Herb. Bras. Reg. Berol. n. 190.*

“Habitat in Brasiliæ Serra d’Estrella, ubi legit Beyrich, in Brasilia sine loci specialis indicatione collegit Sellow.”—p. 57.

6. *S. Plumieri*. Hymen. *Plumieri*, *Hook. et Grev.* excl. syn. *Plum.* *H. hirsutum*, *Presl, in Rel. Hænk.*

7. *S. Sieberi*, *Presl*. “*S. pilis apice stellato-ramosis ciliatum et in stipite costis venisque pubescens, fronde lanceolata utrinque acuta pinnata, pinnis lanceolatis angustato-acuminatis pinnatifidis basi superiore semiadnatis inferiore acutis, laciniis semiovatis obtusis obtuse dentatis, rachi alata, stipite tereti, soris Trichomanes alatum, Sieb. Fl. Mart. Suppl. n. 71.*

“Habitat in Martinica, ubi legit Kohaut.”—p. 58.

8. *S. pulchellum*. Hymen. *pulchellum*, *Schlecht.* *H. attenuatum*, *Beyrich, Herb.*

9. *S. vestitum*, *Presl*. “*S. pilis apice stellato-ramosis ciliatum et in stipite rachi costis venisque pubescens, fronde lineari-lanceolata obtusa bipinnata, pinnis sessilibus oblongo-lanceolatis obtusis, pinnulis inferioribus tri-bifidis, superioribus indivisis laciniisque linearibus obtusis, rachibus stipiteque alatis, soris semiimmersis, indusii usque*

ad medium bifidi laciniis orbiculatis adpressis ciliatis. Filicula digitata, *Plum. Fil. p. 73, t. 50, f. B.* Hymen. hirsutum, *Beyrich, Herb.*

“Habitat ad Rio Janeiro Brasiliæ, ubi legit beatus Beyrich; in Martinica legit Kohaut.”—p. 58.

10. *S. hirtellum*. Hymen. hirtellum, *Sw.*

11. *S. ciliatum*. Hymen. ciliatum, *Sw.* Trich. ciliatum, *Weigell. Pl. Surin. in Reichenb. Herb.*

12. *S. Grevilleanum*. Hymen. ciliatum, *Hook. et Grev. Ic. Fil. t. 35.*

13. *S. lineare*. Hymen. lineare, *Sw.* Hym. species, *Herb. Bras. Reg. Berol. n. 190, b.*

14. *S. Boryanum*. Hymen. Boryanum, *Willd.*

15. *S. commutatum*. Hymen. Boryanum, *Raddi, Fil. Bras. t. 79.*

16. *S. elasticum*. Hymen. elasticum, *Willd.*

2. *Pilosa.*

17. *S. diversilobium*, *Presl.* “*S. fronde glabra lineari-lanceolata utrinque acuta inferne bi- superne simpliciter pinnata, pinnis aduatis, inferioribus in tres, mediis (unius lateris, frondis duplo majoribus quam alterius) in duas pinnulas divisus, superioribus indivisis pinnulisque linearibus emarginatis denticulatis, denticulis ciliiferis, rachibus stipiteque alatis denticulato-ciliatis, pilis simplicibus, soris semiimmersis, indusii usque ad medium bifidi laciniis orbiculatis ciliatis.*

“Habitat in Antillis? *Schedula originalis deperdita, sed si non fallor, a beato Bertero in Hispaniola lectum.*”—p. 59.

18. *S. Schiedeum*, *Presl.* “*S. fronde ovata angustato-acuta bipinnata, pinnis sessilibus oblongo-lanceolatis obtusis, basi acutis, pinnulis linearibus emarginatis undulatis alaque rachidum denticulatis pilisque simplicibus ciliatis, stipite pilis simplicibus piloso apice alato, soris semiimmersis, indusii usque ad medium bifidi laciniis orbiculatis denticulatis ciliatisque.* Hymen. ciliatum, *Schlecht. in Schiede et Deppe Pl. Mex. Exs.*

“Habitat in Mexico, ubi legit clar. Schiede.”—p. 60.

19. *S. trifidum*. Hymen trifidum, *Hook. et Grev.*

20. *S. pendulum*. Hymen. pendulum, *Bory.*

21. *S. cristatum*. Hymen. cristatum, *Hook. et Grev.*

22. *S. bivalve*. Hymen. bivalve, *Sw.*

23. *S. scabrum*. Hymen. scabrum, *Less.*

3. *Glabra.*

24. *S. infortunatum*. Hymen. infortunatum, *Bory.*

25. *S. australe*. Hymen. australe, *Willd.*

26. *S. ricciæfolium*. Hymen. ricciæfolium, *Bory.*

27. *S. rupestre*. Hymen. rupestre, *Raddi.*

28. *S. caudiculatum*. Hymen. caudiculatum, *Mart.* H. ciliatum, *Herb. Bras. Reg. Berol. n. 189.*

29. *S. productum*, *Presl.* “*S. glaberrimum, fronde oblongo-lanceolata angustato-acuminata bipinnata, pinnis sessilibus lanceolatis, pinnulis cuneato-oblongis, inferioribus quadri-trilobis, mediis bilobis, superioribus indivisis lobisque late linearibus obtusis emarginatis sinu obtuso interstinctis, terminalibus elongatis, rachibus late alatis, stipite*

alato basi tereti, soris exsertis, indusii usque fere ad basim bifidi laciniis orbiculatis repandis receptaculo duplo longioribus.

"Habitat in Chili, ubi legit clar. H. Cuming."—p. 61.

30. *S. dilatatum*. Hymen. dilatatum, *Sw.*

31. *S. crispatum*. Hymen. crispatum, *Hook. et Grev.*

32. *S. macrocarpum*, *Presl.* "*S. glaberrimum*, fronde ovata acuta tripinnata, pinnis petiolulatis ovato-lanceolatis, pinnulis primariis lanceolatis obtusis, secundariis cuneatis tri- bifidis, laciniis linearibus obtusis emarginatis alisque rachidum undulatis, stipite alato basi tereti, soris exsertis, indusii usque fere ad basim bifidi laciniis orbiculatis emarginatis longitudine latioribus receptaculum triplo superantibus. *Cuming, Pl. Exs. Philip. n. 130.*

"Habitat in insulis Philippinis, verosimiliter in insula Luzon, ubi legit clar. H. Cuming."—p. 61.

33. *S. badium*. Hymen. badium, *Hook. et Grev. Cuming, Pl. Exs. Philip. n. 112.*

34. *S. gracile*. Hymen. gracile, *Bory.*

35. *S. demissum*. Hymen. demissum, *Sw.*

36. *S. sanguinolentum*. Hymen. sanguinolentum, *Sw.*

37. *S. undulatum*. Hymen. undulatum, *Sw.* *H. fumaroides*, *Chamisso, Herb. et Ind. Kaulfuss, Kunze.* Hymenophylli species, *Herb. Bras. Reg. Mus. Berol. n. 188.*

38. *S. axillare*. Hymen. axillare, *Sw.*

39. *S. abietinum*. Hymen. abietinum, *Hook. et Grev.*

Genus, HYMENOGLOSSUM, *Presl.*

"Costa utrinque teres, prominula, flexuosa. Venæ oppositæ, suboppositæ alternæque, angulo acuto exorientes, parallelæ, utrinque prominulæ, simplicissimæ, in dentes frondis marginatæ excurrentes, ante marginem obtuse desinentes. Sori in dentibus frondis apicales. Indusium..... Receptaculum..... Capsulæ..... Rhizoma repens, filiforme, glabrum, radicibus sparsis flexuosis simplicibus instructum. Frondes sparsæ, distantes, glaberrimæ, vix aut non hygrometricæ, firmiores quam in reliquis Hymenophylloideis, longe stipitatæ, oblongo-lanceolatæ, acutæ, basi acutiusculæ, excepta basi æqualiter vel subæqualiter obtuse dentatæ, tenuiter marginatæ, transparentes, in utraque pagina conformes, pallide virides aut purpureæ, duos usque tres polices longæ, in maxima latitudine (versus basim) decem lineas latæ, in stipite pendulæ. Stipes usque semipedalis, erectus, teres, filiformis, obscure flexuosus, glaberrimus, fuscus. Costa media utrinque prominula et teres, flexuosa, fusca. Venæ circiter lineam ab invicem distantes, oppositæ suboppositæ alternæque, angulo acutissimo exorientes, parallele excurrentes, rectæ vel læviter arcuatæ, simplicissimæ, prominulæ et inde frondem lineantes, in eodem numero ac dentes frondis obvenientes (pro quolibet dente una), libere apice obtuso desinentes. Venulæ nullæ. Parenchyma e cellulis hexagonoideis constructum. Sori in dentibus frondis terminales, cæterum ignoti."—p. 35.

1. *H. cruentum*. Hymen. cruentum, *Cav.*

The present Monograph places in a striking point of view the obligations conferred on Botany by the enthusiastic and almost unparalleled labours of our countryman, Mr. Cuming. Our readers cannot but observe how large a proportion of the new species are derived from this source, and it is truly gratifying to find that British industry

has accomplished so much, and that our countryman's labours are so highly valued and so honorably mentioned by the author, who of all living men is the most capable of appreciating them.

The work is beautifully illustrated with copper-plate engravings, a glance at which will be sufficient to convince a botanist of the value of the genera which the author has proposed, and at the same time will show the great importance of the fruit in distinguishing these interesting plants.

ART. CCXLVII. — *Correspondence relative to Carex paradoxa, &c.*

As the following communications relate to subjects which have lately been discussed in our pages, we have thought it better to include them all under one general head.

Hebden-bridge, September 9, 1844.

SIR,

I now beg of you to favour me with the insertion in 'The Phytologist,' of the following remarks on Mr. Luxford's note (Phytol. 1081). Mr. Luxford says that he deems it his duty to take up the cudgels, in behalf of two of his correspondents, and in one instance to expose something which appears to *him* like a mistake which I have made.

I shall not say here that I do not *very often make mistakes*, but I shall say that I have made no mistake about the discovery of *Carex paradoxa* in Ascham bogs. If Mr. Luxford will just refer to Mr. Spruce's note (Phytol. 842), he will find that that gentleman, in April, 1841, only discovered this plant as it had been discovered before, that is, as *Carex teretiuscula*. Mr. Spruce tells us that he at that time referred it, "though doubtfully, to *C. teretiuscula*." This may be correct; — Mr. Spruce might have some doubts as to the specific identity of the plant; — but when he sent it to his friends in 1841, he sent it under the name of *C. teretiuscula*, without expressing such a doubt. In June, 1828, I gathered this plant (*Carex paradoxa*) in Ascham bogs; but at that time having no description of *C. paradoxa*, I was, the same as Mr. Baines and Mr. Spruce, under the necessity of referring it to *C. teretiuscula*. And as Mr. Spruce concludes his note by telling us that *C. teretiuscula* does not grow nearer to York than Terrington Car, which is fifteen miles distant, and Ascham bogs being only three miles distant from York, it leaves no doubt of the plant

which I gathered in Ascham bogs in the year 1828, and the one published in Baines's Flora under the name of *Carex teretiuscula* in 1840, being identical with the one that Mr. Spruce discovered in the year 1841. What *honor* Mr. Spruce or any other person can possibly have in being the discoverer of a new plant, I am totally at a loss to comprehend, knowing as I do that such an occurrence is merely a matter of chance.

And as far as regards Mr. Sidebotham's *mistakes*, I will just tell Mr. Luxford (as it appears he has forgotten), that the subject of these Carices was no private one, and that when Mr. Sidebotham was asked for the plant, it was not for the purpose of *perfecting a series, but purely with the intention of coming at the truth of a public dispute*. And as Mr. Sidebotham knew this, he would have done much better if he had acknowledged his inability to comply with Mr. Babington's wish, than to have sent him something that would tend to lead him into error. Such a request as Mr. Babington's ought not to have been attended to in a careless manner; but on the contrary, a little more than ordinary care should have been bestowed. Mr. Luxford may think that the mistake should have been set right by a private letter; but I will now tell him that this was no private affair. When I received the letter in question, as I had been previously called on to show why Mr. Sidebotham's specimens did not agree with the description which I had given of my *Carex pseudo-paradoxa*. And further, Mr. Luxford must recollect that Mr. Sidebotham's mistake was between Mr. Babington and himself, and although I was deeply interested, I had no part in it.

Yours respectfully,

SAML. GIBSON.

To the Editor of 'The Phytologist.'

York, 3rd of 9th Month, 1844.

I have a specimen of *Carex paradoxa* in my herbarium, which was gathered at Ascham bog, by my father, in 1818. The *C. teretiuscula* of Baines's 'Flora of Yorkshire' refers to this specimen; thinking it *most* resembled *C. teretiuscula*, my father named it accordingly. The specimen has since been shown to R. Spruce, who pronounces it to be *C. paradoxa*. I believe *C. teretiuscula* is not found at all in Ascham bogs.

JAS. BACKHOUSE, JUN.

Welburn, Yorkshire, Sept. 17, 1844.

Note on Carex paradoxa.—As a companion to Mr. Luxford's note (Phytol. 1021), allow me to call the attention of your readers to a remark by Mr. Teesdale, in his 'Supplement to the Plantæ Eboracenses,' read before the Linnean Society, Dec. 4, 1798, and published in the 5th vol. of their Transactions. Under *Carex paniculata* is the following:—"Obs. We have in the marshes a variety of this, with a small compact panicle, which never forms itself into large tufts, as the *C. paniculata* does. It probably may be a distinct species." I should conclude at once that the plant here alluded to was *C. paradoxa*, were it not that the tufts formed by that species are precisely like those of *C. paniculata*, so far as I have ever observed. The former, it is true, is the smaller plant, and the stools are consequently smaller, though equally dense; and if Mr. Teesdale's words can be understood to imply that his *Carex* does form tufts, though *scarcely so large* as those of *C. paniculata*, I think no doubt will remain of his alluding to *C. paradoxa*. It is not improbable that *C. paradoxa* may have been gathered many times in Yorkshire for *C. teretiuscula*, and I have lately seen it under this name in the collection of Mr. Backhouse, who gathered it in Ascham-bogs some twenty years ago. As to Mr. Gibson's complimentary mention of me (Phytol. 1042), I look upon it as a sort of "note of thanks" for some fine specimens of *Carex paradoxa* he had from me, and which I have reason to believe were the first he had ever seen of the species, as I have not since heard from him in any shape. I did not think it worth while to notice Mr. G.'s misrepresentation, for to him "it is a matter of little importance" to be correct; and I suppose I need not remind him that something more is necessary to entitle a person to the name of a "discoverer," than merely being the first to gather a plant; he ought also to be able to distinguish it from every other species known to exist in the same country, and (if practicable) to make it known under its true name: otherwise might the "natives" of Teesdale be considered the discoverers of *Gentiana verna*, because they have been, from time immemorial, accustomed to decorate their hats and bonnets with its beautiful blossoms.

RICHARD SPRUCE.

Lane House, Luddenden,
Near Halifax, Sept. 13, 1844.

SIR,

While I have my pen in my fingers, just allow me to contradict a misstatement in Mr. Gibson's paper (Phytol. 1039), where he says that I "asked Mr. Sidebotham for my *Carex pseudo-paradoxa*, and he sent him specimens under that name." This is not correct; nor did I ever tell Mr. G. so. Once, when I was in company with Mr. Sidebotham, he gave me a single specimen (the only one I ever possessed) of that plant, which he chanced to have by him. Soon after which, I had the opportunity of seeing Mr. G.'s specimens, when I said to him that they looked different from the one which Mr. S. had given me, little thinking that he would betray me in the way he has done, as I did not consider myself a competent judge, and any one knows the difficulty of judging from a single specimen, especially when that specimen is in an imperfect state. I have asked Mr. G. for a specimen of the plant, but he *never would* give me one.

As Mr. Gibson upbraids Mr. Sidebotham with making mistakes, I would caution him to beware of making them; for I have a specimen of *Carex paniculata* in my herbarium, which he gave me under the name of *C. teretiuscula*, labelled with *his own hand*. This was either a mistake, or something worse. At that time both the above species were strangers to me.

SAMUEL KING.

[Although the above communications scarcely require a comment, yet we cannot refrain from saying in reference to the first part of Mr. Gibson's note, that we hardly comprehend how a botanist, in consulting Baines's Flora, could possibly know that *Carex paradoxa* was intended by the *Carex teretiuscula* recorded in that work, seeing that the name of the plant is unaccompanied by any note, or mark of doubt, expressive of its imperfect accordance with the descriptions. We may also embrace this opportunity of stating, that having hitherto printed Mr. Gibson's contributions in so full a manner as they certainly would not have commanded, had not a cry of unfair dealing been raised by some of that gentleman's admirers; and having thus manifested our desire to afford Mr. G. ample opportunity of defending himself from attacks which, we are sorry to say, he has, in most cases, provoked;—we must now consult the wishes of the majority of the readers of 'The Phytologist,' by reducing within reasonable limits, any future contributions with which we may be favoured by Mr. Gibson:—*Ed.*]

ART. CCXLVIII.—*Additional Plants found about Saffron Walden, during the Summer of 1844; with Remarks on some of the Species.* By G. S. GIBSON, Esq.

Papaver somniferum. Ditch-banks, &c., rare; an outcast from gardens.

Hypericum maculatum. Woods and moist hedge-banks in several places. It appears clearly distinct from either *H. perforatum* or *H. quadrangulum*, for which it is probably often overlooked; but I cannot think it more than a slight variety of *H. dubium*, having the broad, obtuse, reflexed sepals mucronated instead of entire, and the petals slightly streaked with purple. Probably it is not an uncommon plant in most parts of England.

Rubus Koehleri. Hedges on the Ashdon-road.

R. villicaulis. How-wood, Littlebury.

This genus is so intricate, and such a remarkable diversity of opinion exists as to the distinction of the species, and also as to which species many of the variable forms are to be referred; that I feel some hesitation in giving names to them: yet those who have paid attention to the subject, must feel satisfied that there are a considerable number of *really* separate species, and I cannot doubt that these two are among the number. They agree with authentic specimens so named by E. Lees, the great authority for this genus, which I have received from the Botanical Society of London. I wish the attention of botanists were more drawn to this tribe of plants, which requires much further examination, but is too often passed by, either as undeserving of notice, or so intricate as to render the investigation of it a hopeless task. But surely it deserves equal attention with other genera; and the only way to clear up the difficulties connected with it, can be by patient observation in various localities.

Rosa systyla. Hedges, rare.

R. inodora and *micrantha*? Not common. Introduced here on the authority of Joshua Clarke.

Galium Vaillantii. This plant, which I believe has not been hitherto noticed in Britain, was discovered by myself last month, in a field adjoining this town; it grew in tolerable abundance, and was intermixed with *G. Aparine*. The crop on one part of the field was barley, on the other, clover, grown from *English* seed. It was found among *both*, and therefore could not have been recently introduced with the seed; independently of which, it is the opinion of the grow-

ers of clover, that the process through which it passes would not permit seed of this size to remain among it uninjured; moreover, in a field sown with the same seed, I was unable to find any trace of this plant: if, therefore, originally introduced, it must have been years ago, and may now be considered completely naturalized.

A doubt exists among several eminent continental as well as English botanists, as to the claim of this plant to rank as a species; and they are inclined to consider it a variety of *G. Aparine*, while many others believe it to be really distinct. From pretty close observation upon it in this locality, I cannot but think that the latter will prove the correct view of the subject. A considerable difference of sentiment doubtless exists, as to the definition and limits of species; but if it be correct to consider clear and constant differences, which do not generally admit of intermediate forms, sufficient to constitute species, surely this must be entitled to rank as such. These are, 1. The minute size of the flower, and its greenish colour; never white, as in *G. Aparine*. 2. The remarkably branched dichotomous character of the inflorescence, which is most striking in an advanced stage of growth. 3. The invariably small size of the fruit, which is not half the size of that of *G. Aparine*, and is usually more shining in appearance. The habit of the plant, too, is somewhat different, being generally less branched, and of a lighter green colour, but they are nearly alike in size. I have not been able to find intermediate forms between the two plants, so that though growing often entwined together, they are at all stages of growth readily distinguishable, even by superficial observers; therefore it appears that these characters are constant, and the fact of the plants being thus intermixed, renders it impossible to account for their variations by difference of soil or situation.

Though hitherto only noticed in one spot, I think it very likely to be found in other localities throughout the kingdom, having probably been overlooked as *Galium Aparine*. If such be the case, its claim to be considered a native plant will be strengthened.

Tragopogon pratensis. Meadow at Walden. I am unable to discover in the descriptions or specimens of this species, any clear distinction between this plant and *T. minor*, except the length of the florets; but this character is a variable one, as I have gathered specimens this year, in the same field, some with the florets equal to, or rather exceeding, the calyx in length, some with the calyx twice the length of the florets, with intermediate varieties. Can this, therefore, be considered sufficient to constitute it a distinct species, although the extreme forms certainly present a very dissimilar appearance?

Crepis biennis (the true plant). Chalky banks near Littlebury, rare.

Hypochaeris maculata. Open hills near Hildersham.

Mentha viridis and *piperita*. Ditch-banks near Old Sampford.

M. gentilis? Road-side near Walden.

Cuscuta Epilinum. Very destructive to the crop of flax in a field near Thaxted.

C. Trifolii has not been noticed here this year on clover, but I found it on a bank in the field where it was first discovered, growing on *Centaurea Scabiosa*, *Achillæa Millefolium*, *Convolvulus arvensis*, and other plants within its reach, indiscriminately. There has been no clover in the field for two years, so that it does not seem to confine its attacks to that plant, or to require its presence.

Symphytum asperrimum. Duck-street, between Audley End and Littlebury. It has grown there for several years, but probably may have been originally introduced with rubbish from some garden.

Chenopodium urbicum. Rubbish-heaps, rare.

Atriplex deltoidea. Ditch-banks in the Park, sparingly.

Rumex pratensis. Ditches near the Thaxted road. This plant, if rightly named, and I have the authority of an eminent botanist for believing it to be so, I cannot think other than a variety of *R. obtusifolius*, as the form of the enlarged petals is very variable, even on *the same plant*; and there are gradations from the long, ligulate form of *R. obtusifolius*, to the small, triangular one of *R. pratensis*: the breadth of the leaves is also uncertain.*

Populus canescens. Near Chesterford-common.

Allium ursinum. Nun's wood, Walden.

Carex strigosa. Ditto, rare.

C. lavigata. Burton-wood, near Chesterford.

Phleum Boehmeri. Dry hills among sand, at Hildersham, but now very scarce, the land being mostly enclosed and cultivated. Can any of your correspondents point out any other good localities for this grass in other parts of England, or is it confined to a small district in Cambridgeshire?

* It is curious to notice the differences in the descriptions of *R. obtusifolius*, given by Hooker and Babington. The former says that the whorls are "rather close, somewhat leafy," the latter that they are "distant, leafless;" such a discrepancy is remarkable, but the fact is, that specimens *may* be found agreeing with either of these descriptions. As far as my observation has extended, the whorls are generally more or less leafy, but vary extremely in distance. Surely then such variable characters should not be introduced as distinctive peculiarities of the species, as they must tend to perplex rather than assist the young observer.

Barkhausia setosa has not reappeared, being doubtless, as before suggested, introduced with clover-seed from abroad ; it may however be expected as an occasional visitant.

A species of Phlox, which I noticed this summer at Darlington and elsewhere, has been found at Sampford ; and *Lepidium sativum* is often seen by road-sides &c. It is not unlikely that both these plants may ere long find their way into the list of naturalized species.

It is probable that a few other plants will occasionally be discovered in this neighbourhood, as it is many years before even a limited locality is thoroughly explored, and there will always remain some fields, woods and hedges unexamined, which may produce a rare or local plant, confined to one spot in the district.

G. S. GIBSON.

Saffron Walden, October, 1844.

ART. CCXLIX. — *Notes of a Botanical Ramble in Yorkshire &c. in the Summer of 1844.* Communicated by JAMES BACKHOUSE, JUN.

(Concluded from p. 1093).

ON the 11th of 7th Month our party again set out from Settle, and crossed the hills toward Malham. On these we saw *Thlaspi alpestre* in abundance, especially on the rubbish at the mouth of the lead-mines. We gathered fine specimens of *Polemonium cæruleum* in the fissures of some limestone rocks, near Malham-cove, where a valley is suddenly closed in by a huge cliff, from under which a small stream emerges. Here we noticed *Draba incana*, *Geranium sanguineum*, *Pyrus Aria*, and the remains of *Draba muralis*, which, as well as *Hutchinsia petræa*, was now dried up. Leaving this place, we crossed a ridge of hills to Gordale-scar, a deep cavernous ravine in the limestone, where the overhanging cliffs present a striking and fearful aspect. At the further end of this opening we ascended the tumbled rocks of a waterfall, which pours from under a natural arch into the chasm beneath. Near this place we saw *Hieracium Lawsoni*, *Hippocrepis comosa*, *Epipactis ovalis*, *Equisetum variegatum*, *Potentilla alpestris*, *Ribes petræum*, and a remarkable form of *Rhinanthus Crista-galli*, which however passed into the common one. In a boggy piece of ground near Malham Tarn, we gathered *Bartsia alpina*, and on the adjacent crag, *Polypodium calcareum*, *Ceterach officinarum*, and a few specimens of *Hieracium hypochæroides*. A high wind ruffled the waters of the tarn, and brought considerable quantities of *Potamogeton lucens*, *perfoliatus* and *prælongus* to the shore.

On Arncliffe Clowder we found abundance of *Dryas octopetala*? but owing to the lateness of the season, it was chiefly out of flower. This plant is strikingly different from that found in Teesdale, and may possibly prove a distinct species. We passed the night at a comfortable little inn at Arncliffe, and the next morning bent our steps towards Hesletine Gill, where we gathered *Potentilla alpestris*, *Avena alpina*, *Myrrhis odorata*, *Actæa spicata* and *Saxifraga umbrosa* var. *crenata*, the latter in great abundance. On the rocks near the head of the Gill, we saw *Hieracium Lawsoni*, and a *Poa*, probably *P. nemoralis*, var. *glauca*, and on the slope above, *Crepis succisæfolia*, *Hieracium prenanthoides* and *rigidum*? We next ascended Pennyghent, from the summit of which we had a fine and extensive view, though much the same as that from Ingleborough. We descended the mountain on its western side, which is steep, and in some places precipitous. On the millstone-grit rocks we noticed *Salix herbacea* and *Sedum Rhodiola* in profusion, and on the limestone, *Saxifraga oppositifolia*. The violence of the wind prevented our exploring this part completely, and we consequently passed on towards the village of Horton, where, by the side of a brook, we found *Mimulus luteus* and *Mentha citrata*. Near this place we visited a remarkable bog, called Helwith-moss, on which we noticed *Habenaria bifolia* and *chlorantha*, growing together, but still retaining their distinctive characters; also *Vaccinium Oxycoccus*, *Carex curta* and *Andromeda polifolia*. In this neighbourhood, *Rumex aquaticus*, *Trollius europæus*, *Polygonum viviparum*, *Potamogeton pusillus* and *Hippuris vulgaris* were plentiful. After a fatiguing walk of sixteen miles, we again reached our comfortable quarters at Settle.

On the following day we visited the celebrated cave near Clapham; it is situated about a mile from the village, and near the extremity of a picturesque valley. This magnificent cavern is about 1000 yards in length, and from its noble stalactites is probably not equalled by any other cave in the British islands. Far removed from the light of day within its deep recesses, we noticed a plant of the Fungus tribe, probably *Rhizomorpha subterranea*, spreading its root-like branches on a dripping mass of petrification. Leaving the cavern, we attempted to cross the moors, in order to visit some localities for rare plants on the way to Settle; but in consequence of dense fog, with rain and wind, we missed our way, and came upon one of the extensive "limestone pavements" with which this neighbourhood abounds, and after wandering for some time, found ourselves two miles further from the point of our destination than the place from which we started.

On the 13th of 7th Month, after parting from our kind friend, J. Tatham, we left Settle by coach, and reached York that evening, having greatly enjoyed our excursion in the "mountain country."

On the 18th, two of our party again proceeded into Teesdale, in order to examine more fully the locality of *Alsine* (or *Spergula*) *stricta*. We noticed *Linaria purpurea* on the cliff below the ruins of Barnard-castle.

We reached Widdy-bank Fell about 6 o'clock that evening, and after a long and careful search succeeded in finding the plant. Being out of flower, it was with difficulty detected, and this difficulty was much increased by its growing with *Arenaria verna*, which was also out of flower. With the exception of one solitary piece, we only found it in the limited locality where it was first discovered, though we searched many other likely places on the mountain very carefully. Some authors have referred this plant to *Spergula*, some to *Alsine*, and others to *Arenaria*; it has however a decidedly three-valved capsule, which necessarily places it in the genus *Alsine*.

We discovered another fine plant of *Woodsia ilvensis* on a part of Falcon Clints, far distant from the old locality; likewise another solitary plant of *Saxifraga umbrosa*, var. *crenata*. On the way we collected some more specimens of *Hieracium Lapeyrousii*, which was just opening its flowers.

ART. CCL.—*Facts about the Nomenclature of Plants in the London and Edinburgh Catalogues.* By HEWETT C. WATSON, Esq.

SOME correspondents of 'The Phytologist' (Phytol. 972, 1077) have been inditing censures, in the disguise of queries, on the nomenclature of the 'London Catalogue of British Plants,' compared with that of Edinburgh. An importance is given to those censures, which they would not in themselves possess, by an editorial note (Id. 974) being attached to one of the letters. And since 'The Phytologist' has thus spread abroad, and given weight to, censures which are not in accordance with facts, I beg leave to say a few words upon the subject; although I cannot, like my friend Mr. Dennes, call myself an office-bearer in the Society.

It is virtually stated by Mr. Sidebotham, though put as a query (Id. 972), that the Edinburgh Catalogue makes the names of British plants correspond with those in use on the continent, by correcting errors in other lists and works. Mr. Sidebotham does not specify any

continental authority ; nor, probably, was he able to do so. But the editorial note more expressly refers to Steudel's ' Nomenclator Botanicus,' as an authority which should form the basis of a new Catalogue of names and synonymes. That work is, indeed, a most valuable and important one ; and it is constantly in requisition with botanists, as a work of reference which is indispensable to every writer on plants, when names and synonymes have to be ascertained.

Under these circumstances, a comparison between the Edinburgh Catalogue and Steudels' work may fairly be instituted, to show how close is the correspondence between the Catalogue and the great continental authority for names. They both bear the date of 1841, but of course the Nomenclator was much longer in printing. Now, I find that as the names of species stand in the Edinburgh Catalogue, nearly two hundred of them are given by Steudel as synonymes only. They are thus not the names which this continental authority deems most properly applied to the plants. If we add, further, some score or more of names in the Edinburgh Catalogue, which have no place at all in the work of Steudel (*Atriplex deltoidea*, *Cerastium atrovirens*, &c.), we may say that *upwards of two hundred names* in the Catalogue differ from those applied to the plants by Steudel. This is a very large proportion, exceeding *one in every eight names*. The Edinburgh Catalogue includes nearly 1600 reputed species.

After this example of alleged correspondence, let us now look at the contrary example of alleged difference. The plan of the London Catalogue, rejecting dubious species and many very dubious natives, necessarily reduces the sum total. The list of indigenous and introduced species, including the sub-species of *Rubus*, amounts to 1464 ; but as nearly thirty of these are additional species, not in the Edinburgh Catalogue, the proper comparison must be made on the other 1435. It is troublesome to compare an arranged with an alphabetical list very minutely ; but on going over the two, I find only about eighty species in the London Catalogue whose names differ from those in the Edinburgh Catalogue. This is a proportion of about *one name in every eighteen*.

There is something amusing, truly, in such a result. The Catalogue which is praised for corresponding with continental authorities, actually differs from the great continental authority for nomenclature, to the extent of *one-eighth* of the whole. But the Catalogue which is blamed for not corresponding with that of Edinburgh, actually differs from it only to the extent of *one-eighteenth* !

I have not leisure to pursue the comparison further, but am dis-

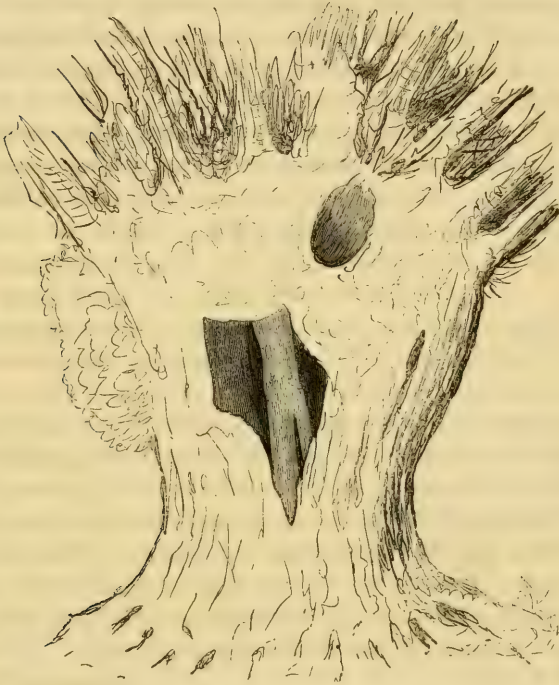
posed to believe, that the eighty names of the London Catalogue, which differ from those of the Edinburgh Catalogue, would be found more frequently in use in continental works, than are the corresponding names or synonymes of the Edinburgh Catalogue: not in each individual instance, probably, but on the average of the whole. Moreover, so many of the plants which appear as species in the Edinburgh Catalogue, are enumerated as varieties only by Steudel, that it seems likely enough the London Catalogue may be nearer to the Nomenclator in this respect, although I cannot say so with certainty. The truth is, that continental authors of influence and reputation differ among themselves fully as much as (and probably more than) our British authors. Particular foreign authors might be selected, with whose works the Edinburgh Catalogue is in closer correspondence; but my own supposition is, that the names of the London Catalogue, on an average, correspond better with those in the greater number of continental publications. Let it be observed, the differences in the two Catalogues are seldom on questions of right or priority; but turn more frequently on the greater or less subdivisions (and consequently re-naming) of old established genera. Thus, the Linnæan genus *Poa* appears under two names in the London Catalogue, but under three in that of Edinburgh. The Linnæan genus *Scirpus* is retained in the London Catalogue, but subdivided into *Scirpus*, *Isolepis* and *Eleocharis* in that of Edinburgh; yet so little natural is this subdivision, that we find *S. multicaulis* and *pauciflorus* — species so like as to be constantly confounded—put into different genera.

HEWETT C. WATSON.

Thames Ditton, October 2, 1844.

[There appears to be some slight misapprehension on the part of both Mr. Dennes and Mr. Watson, with regard to certain portions of Mr. Sidebotham's note, and of the editorial note appended thereto. 1. We do not find that Mr. Sidebotham anywhere *praises* the Edinburgh Catalogue for "corresponding with continental authorities," he says that it "*was to make our names agree with the continental ones,*" not that it had done so. 2. The tendency of the editorial note is, on the whole, approval of the London Catalogue, mingled however with regret that uniformity of nomenclature has not hitherto been attained, and inviting correspondence on the subject. This, indeed, is expressly stated at the outset of the note; and the omission or alteration of a single word—a mere *lapsus calami*—would take away even the *appearance* of censure. *Ed.*]

ART. CCLI. — *Note on Yew Trees.* By W. WILSON, Esq.



Yew-tree in Bowden Church-yard, Cheshire.

AN account of a tree within a tree has lately appeared in the newspapers ; and it is worthy of remark that there is a curious old yew-tree in Bowden church-yard, Cheshire, which presents an analogous appearance. The rude sketch now sent was taken on the spot. The tree is about 5 feet in diameter in the thinnest part of the trunk, hollow and decayed on the east side. Within the hollow, about 6 feet from the ground, a thick, forked, root-like stem, apparently connected with one of the principal branches, has at some distant period, but subsequent to the decay of the trunk, commenced its downward growth, and is now of considerable thickness. It is covered with its own cortical layers. Behind this there is a smaller separate root, about an inch in diameter, proceeding in a slanting direction from the right to the left.

About eight years ago, when passing the celebrated yew of Fortingal, in Perthshire, I was induced to examine its remains, then surrounded by a walled inclosure; and from what I saw, my impression was that the entire circumference marked by the remains, had not been that of a solitary tree, but of several trees which had grown in a circle. May not this appearance have been produced by the same process, but on a larger scale, as that now going forward in the Bowden yew? It would thus appear that the branches of the tree make an effort to put forth internally, roots of their own, when the trunk ceases to convey the requisite nourishment from the ground.

W. WILSON.

Warrington, July 22, 1844.

ART. CCLIII. — *Three Days' Botanizing at Selborne.*

By T. BELL SALTER, M.D., F.L.S.

TOWARDS the latter end of last month, I paid a short visit to the village, which has been rendered so surpassingly interesting by the observations of that true lover of Nature, Gilbert White; whose place and residence are now come into the possession of my much loved and excellent relative, Professor Bell. It was during a short visit to the residence of *White*, and in the company of *Bell*, that the following observations were made,—association and associate to inspire great things. Speaking of association, tempts me to add what I know must be gratifying to every naturalist, which is this;—that the present owner of Selborne Park preserves with the most sacred care all the local reminiscences of his illustrious predecessor—reminiscences, which are neither few in number, nor devoid of interest, but which it would be out of place further to allude to here.

With the habits of many of our birds the name of Selborne has long been, and will long continue to be, associated, from the circumstance of the originality and truthfulness of White's observations, and from the very remarkable fact, that notwithstanding the time which has elapsed, better observations have not since been made. The graphic descriptions of this good man have also associated with the name of Selborne an idea—I had almost said a feeling—of all that is picturesque in Nature, and rustic and primitive in the manners of its simple-minded habitants. So numerous are the observations first made in this sequestered place, that one can imagine it to be the favoured resort of the feathered tribes:—and so may it well be; for it is truly

gratifying to find that no amount of early impressions are likely to carry one's fancy beyond the reality of its native charms. For my own part, there was no anticipation which was not surpassed; and what was the more gratifying to myself as a botanist, was to see very clear indications that the district is likely to prove not less rich to the botanist than to the zoologist.

It was too late in the season to expect to do very much in botanizing, but I soon observed sufficient to be aware that not only might a very rich collection be obtained here, but that also very many most interesting observations might be made in this district, as respects geological Botany.* My time was not sufficient to make extended observations, nor am I myself a geologist, but I was so much struck with some of the peculiarities of this situation, that I cannot refrain from mentioning them.

Selborne is situated at the junction of the upper green sand and chalk formations, and the general fact of the fertility of the soil at the junction of any limestone and sandstone series, holds good here to a remarkable degree. The well known beech *Hanger*, which is on the west side of Selborne, is on the chalk, which is also the case with the beautifully wooded *Nore Hill*, two miles to the south of Selborne. The general aspect of the landscape is decidedly hilly,† and nearly all the hills slope gently to the west, and precipitously on the east side, which sides are very generally overgrown with wood, and designated *hangers*. Passing to the east from Selborne, the level is diversified as above mentioned, but its general tendency is that of a declivity, until, at a distance of about three miles, you arrive at a large sandy flat, which is composed of the lower green sand. The intermediate part consists of the chalk marl and upper green sand, comprising, I am informed, some very remarkable modifications of these, which are highly interesting in a geological point of view. In its unbroken state, the soil of this district is stratified rock or free stone, varying in

* In speaking of *geological Botany*, I believe I am guilty of coining a new term; but I have often observed that the relations between the vegetation of different parts of a district, and its Geology, are most interesting, and would furnish a field for observation, not less interesting than the *geographical* distribution of plants, or rather, I should say, form a most interesting subsection of this branch of Natural History. In an agricultural point of view, such observations might be rendered of great benefit, as by them it might be judged, from the Botany of the fallows, what kinds of manure were required.

† Though very *hilly*, I cannot accord with White in applying the word *mountainous* to this district.

its proportions of lime and sand. This is seen in the beautiful *rocky lanes* or *hollow ways*, so graphically described by White, and which yield well in the spring and summer. In the fields we have soils of sand and lime in the most varied proportions; and it is this feature which renders the botanical distribution so striking. One is surprised at the sudden transition, in many cases, from a Botany which is that of the limestoue or chalk, to one which is essentially that of a sand district; and in other instances by the mixture of both.

In addition to the hangers and rocky lanes, I must mention one or two other features or localities. In the first place there is the *Lith*, a beautifully wooded vale, running east from Selborne, through which a very pretty stream takes its meandering course.

Wolmer forest is well described by White. The total desolation of the scene and the sterility of the soil, are still just as he describes them. But I cannot refrain from noticing the strange resemblance of the shore of Wolmer pond, to that of a creek of the sea. There are the same loose white sand without mould, and here and there the barren black mud so usual in marine places: and even the vegetation increases the resemblance;—the turf of innumerable plants of *Littorella lacustris*, so much resembling both *Plantago maritima* and *Armeria maritima*; and the stunted oak and starved willow have the aspect of those which have suffered from the salt sea gales.

Short-heath, which is to the north-east of Selborne contains more depth of soil, and furnishes some good bog ground, abounding with *Droseræ*, *Anagallis tenella*, *Lycopodium inundatum* and *Polygonum minus*.

Such a diversity of soil and situation promises much, and I think the following list, being one of only three short days' botanizing, and these late in the month of September, gives promise of many good things to those who can give more time to this locality, and at a more auspicious season.

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| <i>Ranunculus sceleratus</i> , <i>hederaceus</i> and <i>aquatilis</i> . Short-heath. | <i>Pyrus Aria</i> . Week-hill hanger, Nore hill. |
| <i>Nasturtium terrestre</i> . Short-heath. | <i>Lathyrus sylvestris</i> . Nr. Week-hill hanger |
| <i>Saponaria officinalis</i> . In a hedge near the Priory. | <i>Drosera longifolia</i> and <i>rotundifolia</i> . Wolmer-forest and Short-heath. |
| <i>Cerastium vulgatum</i> . Temple and Emshot. | <i>Sison Amomum</i> . Rocky lanes, frequent. |
| <i>Radiola Millegrana</i> . Abundant at Wolmer-forest and Short-heath. | <i>Helosciadium inundatum</i> . Wolmer-forest and Short-heath, plentiful. |
| <i>Epilobium angustifolium</i> . Very common in the hedges about Selborne. | <i>Oenanthe fistulosa</i> . Short-heath. |
| ——— <i>roseum</i> . Selborne, near Oak-hanger, and abundant on Short-heath. | <i>Callitriche autumnalis</i> . In a ditch between Temple and Wolmer. |
| | <i>Sambucus Ebulus</i> . Hedge in Selborne-park. |

- Bryonia dioica*. Frequent about Selborne.
Jasione montana. In the Lith, at Wolmer and Short-heath.
Conyza squarrosa. Week-hill hanger.
Prenanthes muralis. Rocky lanes, very co.
Hieracium sylvaticum. Wolmer-forest & rocky lanes about Selborne.
 ——— *umbellatum*. Rocky lane near the Grange.
Fedia dentata. Nore hill.
Veronica Anagallis and *scutellata*. Short-heath.
Scutellaria minor. Wolmer-forest.
Lycopus europæus. Near Temple.
Mentha sylvestris. In the Lith.
Polygonum minus. Short-heath.
Littorella lacustris. Wolmer-forest and Short-heath.
- Rhynchospora alba*. Short-heath.
Juncus squarrosus. Wolmer-forest, and Short-heath.
Scirpus sylvaticus. By the bridge at Oak-hanger, and in a swamp at the foot of Week-hill hanger.
Poa nemoralis. In a bank between Week-hill farm and the Hanger.
Lastræa multiflora. Dry ditch at Wolmer
Polystichum aculeatum. Honey-lane and near Emshot.
 ——— *angulare*. Honey-lane and near Emshot, sparingly.
Athyrium Filix-fœmina. In a shady dell near Emshot-church.
 ——— ——— var. *molle*. In a dry ditch at Wolmer-forest.
Lycopodium inundatum. Short-heath

I have not mentioned in this list so common a plant as *Calluna vulgaris*, but it worth noticing that the greater part of this plant, which abounds at Wolmer, is of the most hairy form.

We did not at Wolmer see any of the *Vaccinium Oxycoccos*, mentioned by White as growing there, but it must be tolerably abundant in some parts, as we met a poor woman with a handkerchief full, which she had collected for tarts.

The *Epilobium angustifolium* mentioned above must, a little earlier in the season, be a very great ornament, as it grows very tall, and in great profusion. *Epilobium roseum* was growing in a rather unusual kind of locality. I had never before seen it except in cultivated ground, and, with the exception of one garden at Salisbury, never far from London. In the present instances it was growing in loose sand, by the side of running water, in very considerable abundance. The flowers were unusually pale and little expanded, and what was further noticeable, it was always growing with *E. parviflorum*, of intense colour.

The *Sambucus Ebulus* growing in the park, could not have been growing there in White's time, as he mentions the plant in his catalogue, but not as growing so near him. It might possibly have been planted by him.

White speaks of the lanes as abounding in ferns; my impression was decidedly the reverse. It is remarkable that *Polystichum aculeatum* and *P. angulare* were generally growing together, but both in

their most pronounced forms, the former being almost of the mountain or lobatum form.

A large yew-tree growing in the church-yard deserves notice. We measured the trunk, at what appears the point of its greatest circumference, which was about four feet from the ground, and found it to be at that part twenty-four feet and eight inches ; but the Rev. — Parsons, the present incumbent, informs me that at one part it measures twenty-seven feet.

The maples growing in the park deserve some notice. From a large knotted mass of wood, rise from six to eight stout trunks, averaging a circumference of about three feet each. These all ascend, slightly diverging, and forming as it were a compound trunk. At the height of about fifteen feet they break into one magnificent head, not inferior to a very respectable sycamore. There are in the park many such groups, or rather compound trees.

I have omitted all mention of the Rubi from the above list, not because there were few forms, or that they were devoid of interest, for it was quite otherwise, but because they are still *sub judice*.

T. BELL SALTER.

Ryde, Isle of Wight, October, 1844.

ART. CCLIII. — *Remarks on some Species of Chenopodium.*

By GEO. FITT, Esq.

HAVING lately paid some attention to the undermentioned species, with the view of satisfying myself that they are all really distinct, I send you the result of my observations.

Chenopodium intermedium. Leaves triangular, slightly attenuated at the base, inclining to hastate, deeply and irregularly toothed, *teeth acute*, dull green, not shining, *mealy* beneath, somewhat leathery in texture ; leaves on the spikes toothed, seldom entire, those of young plants blunt, hastate, and but slightly toothed. Spikes long, somewhat leafy, clusters distant ; seeds flattened, as large as rape-seed, rough ; calyx 5-cleft. Stem angular, strong, erect.

Smell of the whole plant rank, especially the calyces.

C. rubrum. Leaves nearly rhomboid, seldom triangular, deeply and irregularly toothed, *teeth blunt*, shining, fleshy, upper ones scarcely toothed, those of the spikes generally entire, rhomboidal or

ovate: in some plants the large leaves of the stem are nearly triangular, slightly attenuated at the base, resembling those of *intermedium*, and in others they are almost three-lobed. Stems angular, generally erect, occasionally procumbent and with leaves not fully developed, when the plant somewhat resembles *C. botryodes*. Spikes compound very leafy, and the clusters much crowded. Seeds one fourth the size of those of *C. intermedium*, rather rough and flattened. Calyx in three deep segments, edges membranaceous.

Smell scarcely unpleasant.

C. botryodes. Leaves triangular, inclined to hastate, shortly attenuate at the base, slightly toothed, the *teeth acute*, lower leaves very blunt, almost rounded and *entire*; small upper leaves, and those of the spikes sometimes rhomboid: in luxuriant specimens, a few leaves are sometimes deeply and acutely toothed, hastate and pointed: in their general form they resemble those of *C. Bonus-Henricus*, with the addition of the teeth, but in texture they are like those of *C. rubrum* and *C. intermedium*; in the figure in Smith's 'English Botany,' they are made too pointed and lengthened, the figure is otherwise characteristic: tinged with crimson, especially beneath. Stems weak, procumbent, of a deep crimson colour. Spikes rather leafy, resembling those of *C. intermedium*, the clusters even less crowded. Seeds as small as those of *C. rubrum*, in a loose skin, vertical. Calyx closed over the fruit so as to appear entire, and bursting in three short segments.

When fresh-gathered, the smell is like that of the pods of green peas.

I omitted to examine the flowers when in season. On the end of the spike of this species there is generally a central 5-cleft calyx.

I have always found *C. intermedium* constant to the above characters; and by its very rank smell, larger seeds, and the uniformity of its leaves, it may be readily known from *C. rubrum*.

C. botryodes, in general appearance and habit, is more distinct from *C. rubrum* than the above. It is by no means a variable plant. its lower leaves are always the same in form and texture. During the last two years I have observed the growth of some hundreds of plants; and I have now before me a score of good ones, besides dried specimens; and yet I have not, that I recollect, met with one about the identity of which I have had the least doubt. It often grows side by side with *C. rubrum*, although they do not usually inhabit the same soil, and in this juxta-position each maintains its distinctiveness. The

fact is, *C. rubrum* is a very variable plant, and some peculiar form of it may be mistaken for *C. botryodes* by those who have not had the opportunity of seeing living specimens of the latter; and thus they have been thought not distinct. It would not be easy to decide the question from preserved specimens, as they lose much of their character in the process of drying.

One fact connected with *C. botryodes* will, I think, be interesting to botanists. It grows in the greatest profusion and beauty (for it is a handsome plant) where mud has been thrown out of ditches during the summer, and where grass has not had time to grow. Four or five days since, I found a considerable number of specimens in a marsh, where it had not appeared before for several years, as I have visited the spot constantly in my botanical walks. This place is two miles distant from where I usually find the plant, and two rivers intervene. I can only account for its sudden appearance, by supposing that the seeds lie dormant at the bottom of the ditches, preserving their vegetative power, until a favourable opportunity offers for them to grow, when cast out with the mud. The plant does not grow on the same spot on the following year after its appearance in this manner, except in small quantity, as it will not thrive among grass. I went to one station last year, to gather specimens for Dr. Wood, and found to my dismay, that the spot was buried beneath heaps of mud. In three weeks after, an abundant crop of *C. botryodes* was the result. Scarcely a specimen grows there this season, although thousands of seeds must have fallen on the soil, now nearly covered with grass and *Atriplex patula*. In proof that the seeds in these cases were in the mud, wherever the latter was scattered about the marsh, as it was in several places, there grew *C. botryodes* in profusion.

I should feel greatly obliged to any botanist who would furnish me with a specimen of *C. ficifolium* in flower and in fruit; and I should be happy to give him, in return, good specimens of *C. botryodes*. They might be sent by post.

GEO. FITT.

Nth. Yarmouth, Oct. 15, 1844.

ART. CCLIV.—*Varieties.*

528. *Note on the Spotted Hieracia.* Discordant opinions have been given respecting the correct specific names of our hawkweeds which bear leaves stained with black or purple, (Phytol. 741, 801,

841, 865). Too much stress has been laid on the stained character of the leaves. Smith says of *H. murorum*, that "the leaves are never stained with black." The same author describes the leaves of *H. maculatum* as "dark green above, more or less speckled with black or dark purple." Of *H. sylvaticum* he writes, "Herb hairy, of a pale, unspotted, grass green." The leaves of *H. pulmonarium* he describes as "bright green" and "clouded with faint blotches of purplish brown." No mention is made in 'English Flora,' of stains upon the leaves of *H. Lawsoni*. It would thus seem that Smith referred all the spotted-leaved plants which he had seen, either to his *maculatum* or *pulmonarium*; and succeeding botanists have doubtless been misled by Smith's error. Having had the opportunity of examining many plants with spotted leaves, in the Eastern Highlands, this year, I venture to offer the following conclusions, derived from these and the specimens previously in my hands.

1. *H. murorum*, more frequently than other reputed species, varies with spotted leaves; and in this state it has been usually labelled *maculatum* or *pulmonarium*. It is this which Mr. Gibson denominated *hypochæroides* (Phytol. 741), on account of the plant having been formerly mistaken for *Hypochæris maculata*.
2. *H. Lawsoni* also varies with stained leaves. I saw numerous examples of this in Aberdeenshire, the present year; and it has appeared in my garden, among the descendants of unstained wild plants, brought from Perthshire, some few years ago. The stains on this species are streaks rather than spots.
3. I have never seen a *wild* specimen of *H. sylvaticum* (certainly so) with these marks on the leaves; but a plant in Kew Gardens, which may be correctly assigned to this species, has its leaves much clouded with dark purple. This plant (equally with others, with dark green and unstained leaves, in my own garden) differs from the descriptions of *H. sylvaticum*, by having numerous radical and few stem leaves; but I suppose the difference in the number and colour of the radical leaves to arise from the garden locality. As to the stem-leaves, the wild plants of *H. sylvaticum* have often only one or two, besides those at the very base.
4. Among a number of young plants, brought to my garden from Canlochen Glen, on account of their spotted leaves, some apparently will prove to be *H. nigrescens* and others *H. murorum*. This is an additional circumstance (Phytol. 804) towards showing the identity of *H. pulmonarium* (*Smith*) and *H. nigrescens* (*Willd.*) At all events, the plant of Smith appears to me to have small resemblance to *Lawsoni*, with which Mr. Babington unites it under the name of *diaphanum*.
5. There is the variety *pictum* of *H. rigidum* (Bab. Man.) for another

stained-leaved Hieracium; but I possess no specimen of it, nor do I clearly understand what is intended under the name of rigidum. Thus, we have varieties "maculatum" of *H. murorum*, *Lawsoni*, *pulmonarium*, *sylvaticum*, *rigidum*, and, probably, *nigrescens* — if this latter is not the same as *pulmonarium*. In Decandolle's *Prodromus*, there is only a single "maculatum" recognized by name; and that one is placed as a variety under *H. murorum*. — *Hewett C. Watson; Thames Ditton, October 4, 1844.*

529. *Note on the discovery of Leersia oryzoides in Sussex.* You may, if you please, insert in the next number of 'The Phytologist,' a notice of the discovery of *Leersia oryzoides* as a British plant. I have found it in three places in the Henfield level, growing along the edges of the marsh-ditches. I first observed it on the 24th of September last. — *W. Borrer; Henfield, October 8, 1844.*

530. *Note on Juncus diffusus?* A plant which I had supposed might be *Juncus diffusus*, grows plentifully within the sand-hills, on the east side of Huntston, between Lynn and Wells, Norfolk. It forms spreading patches of large size, mixing with *J. maritimus*. I think the same plant grows also near the river, above Lynn, but what I took for it there was much injured by cattle. *Juncus effusus* is noticed as British, in Babington's Manual, "on the authority of W. Sonder, of Hamburg, who possesses Scottish specimens." It may be distinguished from *J. glaucus* by having solid pith; that of *J. glaucus* being cellular: it is also a greener plant, and has mucronate fruit. This notice may perhaps lead to further enquiry. — *James Backhouse; York, 14th of 10th Month, 1844.*

531. *Note on Cuscuta europæa, &c.* I lately noticed *Statice spathulata*, growing in company with *S. Limonium* and *S. reticulata*, near Wells, in the opening opposite Holkham; and *Cuscuta europæa*, on nettles, in the Bulwark-road, Earith, Huntingdonshire. *C. europæa* is of frequent occurrence in the adjacent parts of Cambridgeshire, where it is called "scald;" it may be presumed, on account of the scalded appearance which it gives to the bean-crops, to which it is often injurious. Burning the bean-chaff, and keeping the hedges free from nettles, have removed this pest to the farmer from some places where it formerly abounded. — *Id.*

532. *Note on Carex teretiuscula.* Your correspondent Mr. Luxford (Phytol. 1021) has appealed to me for further information as to the *Carex* found near Halnaby, and which I conceived at the time might be a small variety of *C. paniculata*. A further examination has

convinced me that it is *C. teretiuscula*; and for this I have also the authority of Dr. Boott. — *Joseph Woods*; *Lewes, October 19, 1844.*

533. *Note on Athyrium Filix-fœmina as a Tree-fern.* In a small bog very near Ryde, are some plants of *Athyrium Filix-fœmina*, which must be of very considerable age, the rhizomata being raised to the height, in several instances, of a foot and a half to two feet, thus constituting the plant, in some degree, a tree fern. The rhizomata however do not stand free as proper stems, but the old fronds, decayed and overgrown with *Sphagnum*, form slender conical tumuli, filled with fibres from the rhizomata, by which the plant assimilates to itself again the decayed materials of its former fronds. Many of the rhizomata are much branched, the whole length of the branches however being contained in the sphagnous mould. The rhizomata and branches, though contained in this mass of decayed vegetable matter, do not themselves decay, but may be traced throughout, some of the leading ramifications being more than a foot in length. *Carex paniculata* is growing in the same little bog, and the tumuli formed by the fern bear a very strong resemblance to those of this *Carex*, so well known when, under favourable circumstances, it attains a considerable age. — *T. Bell Salter*; *Ryde, October, 1844.*

534. *Note on Stipa pennata.* The long feathery awn by which the persistent palea of this grass is surmounted, is well known; but one interesting part of its structure appears to have escaped observation. Below the feathery portion, the awn is spirally twisted, and the seed has a sharp point, which is oblique exactly in the axis of the spire of the awn. By means of this contrivance, when the seed falls to the ground it becomes buried to some little depth. This structure is in accordance with the constitution of the seed, for I find those which are thus imbedded seldom fail to vegetate, while those which become dry are apt to lose their vegetative power. — *John Lawrence*; *St. John's, near Ryde, October, 1844.*

[In the generic description of *Stipa*, Smith says “*Cor.* of 2 valves, nearly equal in length; the outer elliptic-lanceolate, involute, slightly keeled, with a very long, terminal, twisting awn, jointed, and finally separable, at the base. * * * *Seed* cylindrical, pointed, loose, closely enveloped in the hardened outer valve of the corolla, which is very sharp, and barbed with bristles, at the base, so as to penetrate and fix itself in the earth.” And again: — “*Flowers* erect, slender, with long awns, bent just above the twisting part; then straight; either feathery or naked.” — Eng. Flor. i. 161. Hooker also observes: — “*Cor.* cartilaginous, involute, terminated with a very long twisted awn, jointed at the base, and finally separating at the joint. * * * A great ornament to our gardens in the summer, and to our rooms in the winter, for if gathered before the seed is ripe, the long feathery awns remain, and a tuft of them is

almost as beautiful as the famed tail of the Bird of Paradise."—Brit. Flor. ed. 5. 383. Such of the Compositæ as have their fruit crowned with a pappus, whether stipitate or sessile, present a somewhat analogous provision for ensuring both the dispersion and the subsequent germination of the seed. The thistles offer a familiar illustration. When the seed, separated from its parent plant, and borne to a distance by its beautiful balloon, has met with a spot suitable for germination, it becomes, as it were, *screwed* into the ground; the pappus then separates from the seed by an articulation at the apex of the latter, and buoyantly floats away. If the thistle-down with which the air is filled in autumn, be examined, very few will be found with the seed attached, but the rays of the pappus will be seen to proceed from a central elastic ring. At this ring the pappus was articulated with the seed.—*Ed.*]

535. *Note on Asplenium fontanum.* "Every man has his bubbly Jock," and *Asplenium fontanum* appears to be mine. I might perhaps deny the existence of such a fern, and treat it merely as a name unrepresented by a reality; but I decline availing myself of this plea, and acknowledge that there are three European species of *Asplenium* successfully cultivated by our nurserymen under this name, and freely distributed to those inclined to purchase. I therefore admit the existence of such a fern, and merely dispute its having been found wild in Britain. My correspondence on this subject would fill several numbers of 'The Phytologist,' but I have no idea of dragging it before the public. Still, Mr. Redhead and Mr. Thompson, by calling *public* attention to supposed discoveries, seem to invite a *public* reply. Of all the recorded British habitats of *Asplenium fontanum*, Mr. Redhead's appears to me decidedly the best and most worthy of reception (Phytol. 1084). In the first place, the specimens are actually in existence; are decidedly referrible to *Asplenium Halleri*, one of the species cultivated under the name of *fontanum*; and finally, they came into my hands directly from the discoverer; who unequivocally declares that at a certain date, and at a certain place, he gathered them with his own hand. This, one would suppose sufficient for the most sceptical; but I will venture to ask Mr. Redhead a few questions, which, if he will kindly and satisfactorily answer, I will instantly apologize for having expressed the slightest doubt on the subject. 1. Will Mr. Redhead inform the readers of 'The Phytologist,' whether he was more than eight years of age when he discovered *Asplenium fontanum* in Wharnccliffe wood, in the year 1838; and if older than I suppose, will he please to say how much older? 2. Will Mr. Redhead inform the readers of 'The Phytologist,' whether he had any knowledge whatever of Botany at the period of this discovery; that is, whether he believes that in 1838, he would have known a fern from a thistle? 3. Will Mr. Redhead inform the readers of 'The Phyto-

logist,' whether he labelled the specimens found by him in 1838, with date, locality, &c., at the time of finding them; and if not, by what means he traces the specimens sent to London to the date and locality mentioned? If Mr. Redhead succeeds in demonstrating to the readers of 'The Phytologist,' that in 1838 he had arrived at years of discretion and judgment; that he possessed a tolerable acquaintance with British plants; that he was then in the habit of collecting and labelling plants; that he recognized this fern as a rarity, or exhibited it to any botanist who told him its name and value; then I shall be inclined to enter into the subject more at length. But if it turns out as I suspect, that Mr. Redhead was a mere child, neither possessing nor pretending to possess the slightest knowledge of Botany, neither labelling nor even collecting plants;—why then I think the question may be considered as decided. In reply to Mr. Thompson's communication (Phytol. 1081), it may be well to state that Mr. Shepherd's supposed discovery was thoroughly sifted prior to the publication of my British Ferns, and this, not only by myself, but by a botanist whose judgment is received with universal respect; and he fully united with me in considering the evidence unsatisfactory. I may add, that during the past week, a dealer in British ferns called at the printing-office, and in the presence of a valued contributor to 'The Phytologist' (G. S. Gibson), stated that he knew of *three* British localities for *Asplenium fontanum*. He sells these rarities daily at the eastern entrance of the Bank of England; or, if the metropolitan market appear to be glutted for a season, he tours the provinces, supplying country botanists on very liberal terms. His supply is inexhaustible. *Edward Newman*; 2, *Hanover St., Peckham, October 24, 1844.*

535. *Rarer Plants observed in the neighbourhood of Penzance.*

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| <i>Agrostis setacea.</i> Newlyn cliffs. | <i>Euphorbia Paralias.</i> Hayle sands. |
| <i>Ammophila arenaria.</i> Hayle sands. | ——— <i>portlandica.</i> Hayle cliffs. |
| <i>Antirrhinum Orontium.</i> Bologas. | <i>Gastroidium lendigerum.</i> Conner down. |
| <i>Brassica oleracea.</i> Penzance cliffs. | <i>Helleborus viridis.</i> Zimmermum cot. |
| <i>Briza minor.</i> Bologas. | <i>Hyoscyamus niger.</i> Marazion green. |
| <i>Cullitriche pedunculata, β. sessilis.</i> Chyanhall moor. | <i>Illecebrum verticillatum.</i> Chyanhall moor. |
| <i>Cerastium tetrandrum.</i> Marazion green. | <i>Inula Helenium.</i> Trereife. |
| <i>Cicendia filiformis.</i> Chyanhall moor. | <i>Iris foetidissima.</i> Hayle. |
| <i>Cochlearia danica.</i> Newlyn cliff; and on walls in Penzance. | — <i>tuberosa.</i> Olverton and Treveneth, on hedges. |
| <i>Cynodon Dactylon.</i> Marazion green. | <i>Juncus maritimus.</i> Hayle river. |
| <i>Daucus maritimus.</i> Land's end. | <i>Lavatera arborea.</i> Mousehole cliffs. |
| <i>Erica vagans.</i> Conner down. | <i>Lepturus incurvatus.</i> Hayle causeway. |
| <i>Erythræa ramosissima.</i> Conner down. | <i>Littorella lacustris.</i> Chyanhall moor. |
| | <i>Mentha viridis.</i> Newlyn cliffs. |

- Myriophyllum alterniflorum*. Chyanhall moor.
Narthecium ossifragum. Chyanhall moor.
Nepeta Cataria. Logan rock.
Oxalis stricta. Larrigan, near Penzance.
 — *corniculata*. Bologas, rare.
Pinguicula lusitanica. Chyanhall moor.
Polycarpon tetraphyllum. Newlyn.
Polygonum Rayii. Newlyn green and Marazion green.
Radiola Millegrana. Newlyn cliff.
Ranunculus parviflorus. Mousehole.
Reseda fruticulosa. Marazion green.
Rumex Hydrolapathum. Marazion marsh
 — *sanguineus*. Penzance.
Samolus Valerandi. Mousehole cliff.
Schœnus nigricans. Marazion marsh.
Scilla verna. Penlee point.
Scrophularia Scorodonia. Newlyn cliff.
Sedum Telephium. Logan rock.
Scutellaria minor. Bologas.
Sibthorpia europæa. Newlyn cliff.
Spergula subulata. Chyanhall moor.
Stachys ambigua. Newlyn cliff.
Tamarix anglica. St Michael's mount.
Tesdalia nudicaulis. Bologas.
Teucrium Chamædrys. Ludgvan.
Wm. Curnow; *Pembroke Cottage, Newlyn Cliffs, Penzance, 1844.*
- Trifolium ornithopodioides*. Marazion gr.
Zostera marina. Penzance.
Adiantum Capillus-Veneris. Hayle, in caves and high cliffs.
Hymenophyllum Wilsoni. Carn Brea.
Lastræa recurva. Chyune grove.
Equisetum arvense: a variety with mixed fronds, approaching *E. palustre*. — This singular form I have gathered in several states, some of them having the normal fertile stem attached, proving it to be the true plant.
Pilularia globulifera. Chyanhall moor.
Phascum axillare. Newlyn.
 — *rectum*. Ludgvan, J. Ralfs, Esq.
Gymnostomum pyriforme. Bologas.
Schistostega pennata. Newlyn.
Diphyscium foliosum. Chyanhall.
Bryum Tozeri. Newlyn cliff, in fruit.
Leucodon sciuroides. Miney.
Hookeria lætevirens. Mousehole cave, W. Borrer, Esq.
Parmelia Borreri. Treveneth, beautifully in fruit.
Roccella fuciformis. Logan rock.
Psora atro-rufa. Penlee point, J. Ralfs, Esq.

ART. CCLV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 4, 1844. — John Reynolds, Esq., Treasurer, in the chair. Read, a General Description of the Botany, Climate and Physical Geography of the Neighbourhood of Embleton, in Northumberland; drawn up by Robert Embleton, Esq., in illustration of a local herbarium of the district, collected for the Society by the same gentleman. The description and herbarium will remain at the Society's Rooms as a valuable record of the present condition of the district. — *G. E. D.*



